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DEPARTMENT OF MENTAL HYGIENE

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PSYCHIATRIC MANIFESTATIONS OF CHRONIC SUBDURAL HEMATOMAS*

BY ARTHUR N. FLEISS, M. D.

It is always a source of satisfaction to recognize the organic components of what has previously been considered functional mental illness. Subdural hematomas can impair the function of the brain by direct or remote transmission of pressure. Recently, evidence has become more prominent that they are capable of precipitating mental illnesses which may easily be misinterpreted. Emphasis on the need for recognition of subdural hematoma as a possible immediate cause of psychotic and so-called neurotic disturbances is considered justification for this presentation.

The diagnosis and treatment of subdural hematomas have, in the past, primarily been dealt with from a neurologic viewpoint. Many instigating agents have been named in various reports, including meningeal infections, neoplasms, alcoholism, avitaminosis, arteriosclerosis, general paresis, blood dyscrasias, and others. It is sufficient to say here, however, that, in recent literature, trauma to the head, both of minor and major character, has assumed a most prominent position in the list of causes. That the symptoms may vary tremendously in different patients, as well as in any one victim, is well known. This great diversity in the constellation of symptoms is dependent upon the parts of the brain most seriously affected by the increased intracranial pressure. The great variation in symptoms, however, which may occur in any one patient at different times, depends, in large part, upon the dynamic nature of the pathologic changes which take place. The rupture of subdural veins may cause an accumulation of blood which will manifest itself, clinically, with great speed when the blood is still in fluid form. On the other hand, symptoms may not be noted for an extended period until the clot is enclosed in a membrane, the outer surface of which is attached to the dura. In this cyst-like mass, with fluid and disintegrating blood clot, secondary hemorrhages and osmosis cause pressure variations. Consequently, an estab-

*Read at the interhospital conference of the New York State Department of Mental Hygiene, Syracuse Psychopathic Hospital, April 26, 1944.

lished hematoma may persist for years and only then present gross neurologic disturbances.

The possible neurologic manifestations of a subdural hematoma would include almost any combination of symptoms and signs of intracranial lesions. In many disease processes in the brain and brain stem, the diagnostic skill of the clinician is often successfully aimed at localizing the lesion. The clinical evidence of a subdural hematoma, however, frequently defies any effort to identify a localized disease process. The signs may indicate involvement of various brain parts from the outer cortex of the cerebrum, through the internal capsules and peduncles, to the midbrain and various cranial nerves, and the vital medullary centers, all being manifested in bizarre combination. In fact, the present writer believes that the presence of difficulty in evaluating the signs and symptoms of an obscure intracranial lesion should immediately arouse suspicion of a subdural hematoma which is exerting its pressure to remote parts of the brain.

The classic neurologic signs of increased intracranial pressure are seen in the disease. Vomiting and papilledema may be seen in the later phases and are preceded by headaches, dizziness, mild pareses or complete paralyzes, Jacksonian or generalized convulsions, ocular and other cranial nerve palsies, and remissions and exacerbations. Fluctuation from somnolence to clearness of mind is a well-known phenomenon in this illness. Unequal pupils, bradycardia, and slowed respirations are often seen, but choked discs are not observed in a majority of cases. The picture may also be one of profound coma, resulting in death if surgical intervention is not quickly undertaken. The spinal fluid, when measured by lumbar tap, often will not reveal increased pressure, and frequently there will be no xanthochromia or elevation of its protein content.

The foregoing description briefly summarizes the type of patients with subdural hematomas most often seen on any neurologic service. That these individuals may go for long periods before their disturbances become prominent makes possible the misinterpretation of many signs and symptoms which thus appear to be of predominantly psychogenic or other than central nervous system origin.

The presence of mental aberrations in patients with meningeal hemorrhage has been recognized for many years. Some few neurologic texts describe this phenomenon, briefly, though many of our standard psychiatric references omit its mention. Wilson¹ referred to the appearance of Korsakoff's syndrome when bleeding reaches the subarachnoid space. Wechsler,² in his text, briefly stated that in subdural hematoma there is occasionally sudden excitement or delirium, and that there may be symptoms commonly regarded as neurotic.

Grinker,³ in discussing chronic subdural hematomas, states that the patients are irritable, irascible, and show signs of completely changed personality, frequently being placed in mental hospitals as psychotic individuals. Groff and Grant,⁴ in comprehensively reviewing the literature on subdural hematomas, in 1942, wrote that symptoms referable to the mind—failing memory, confusion, and uncontrollable irrationalism—may occur.

Only in recent years, however, have case reports indicated that mental changes may be unaccompanied by the ordinarily expected neurologic signs. In 1938, Olkon⁵ described a patient having a chronic subdural hematoma with acute psychotic manifestations. This 37-year-old man suddenly became confused, completely disoriented, failed to recognize his family, and became violent. He refused food and water for fear they were poisoned, expressed many delusions, and was hallucinated. He was fearful of everyone near him and became negativistic, anxious, apprehensive and resistive. It was learned that during the preceding year, a marked personality change had been noted. Formerly, he had been of good disposition, but became quarrelsome, secretive and fault-finding, as well as paranoid toward his business associates. He complained of continual headaches, which had started very suddenly a year before the acute psychotic episode. When seen in the hospital, he was semi-stuporous, but often muttered irrelevantly. Once he attempted to jump out of the window. On neurologic examination, the only abnormal findings were absent abdominal and cremasteric reflexes and a slightly lively right knee jerk. The spinal fluid was clear without apparent increase in pressure. There were five cells, colloidal gold curve 1111000000, but otherwise the fluid was normal. X-rays of the skull were normal. Ventriculography was under-

taken, but when the dura was cut, several ounces of dark blood gushed out. The patient quickly improved mentally, and 21 days after admission was discharged from the hospital as fully recovered.

The author noted that the main symptoms in this case were those of an acute psychosis without dominant neurologic manifestations. The change of personality preceded the acute onset by one year.

In 1939, Furlow⁶ similarly described three cases of chronic subdural hematoma with psychotic symptoms. In two of these, the hematomas were clearly responsible for the psychoses, and both patients recovered completely after surgical intervention. In the third individual, the psychosis did not clear after the removal of the hematoma, and their relationship was not clearly proved. The author concluded that chronic subdural hematoma may produce psychotic manifestations which may exist for a long time before the appearance of any of the usual signs of increased intracranial pressure. One of his patients, who recovered completely, displayed psychotic symptoms for three years before the signs of increased intracranial pressure appeared.

Love and Bailey,⁷ in 1937, reported a case of subdural hematoma with negative neurologic examination. This patient's only complaint was continuous headache following a head injury. These authors pointed to the danger of diagnosing such an individual as having a posttraumatic neurosis.

In 1943, Abbott, Due, and Nosik,⁸ of the United States Naval Reserve, presented a series of 25 patients with postbattle subdural hematomas and effusions in which psychiatric changes were the predominant abnormalities. Many had repeatedly been diagnosed psychoneurosis, war neurosis, traumatic neurosis, postconcussional state, or epilepsy. The authors emphasized that neurologic abnormalities were absent in approximately 80 per cent of the patients. Their diagnoses depended primarily upon psychiatric estimation of personality changes and intellectual impairment. The symptoms were those usually seen in the illnesses previously mentioned, and as which many of these cases had at first been erroneously diagnosed. Pneumoencephalograms to demonstrate the absence of cortical markings in the involved areas were used to corroborate the clinical impressions. It was noted that 88 per cent of these air

studies revealed no ventricular shift, and only careful study of the subarachnoid channels revealed the presence of a foreign mass. In estimating intellectual impairment, the authors used the Shipley-Hartford Retreat Test, which compares the individual's vocabulary, usually constant, with his ability to appreciate abstractions, usually interfered with in impaired states. Postoperative repetition of the test revealed restoration of abstraction appreciation along with other improvement in the mental symptoms.

In 1940, Linell⁹ described two patients with mental changes associated with chronic subdural hematomas. One patient's psychosis was characterized by gross regression with uncleanness of table manners, dress, and toilet, beginning about five months after a head trauma. This did not improve after the evacuation of a large subdural hematoma, suggesting more extensive cerebral damage. The other patient suffered with severe depression for some years after an airplane crash and had attempted suicide. This man's mental condition improved greatly after an old subdural hematoma was removed, although he was left with a residual hemiplegia.

At the Syracuse Psychopathic Hospital, a patient has been observed over a period of 13 years with what has appeared to be recurrent manic episodes of a manic-depressive psychosis. His first admission was in 1931, at the age of 56; and after two months, he was discharged as recovered. Within a few days of leaving the hospital, he returned with a recurrence of mental symptoms, but with the addition of neurologic signs which had not been present before, including weakness of the right arm and leg, the right pupil greater than the left, and an ataxic gait. The psychiatric picture was considerably changed, with the presence of mental sluggishness and untidiness. At his family's request, he was transferred to the neurologic service at the Strong Memorial Hospital, in Rochester, N. Y., where exploration revealed a hemorrhagic pachymeningitis of the left hemisphere. After its removal, the patient recovered mentally and physically.

In two months, this man again relapsed into a manic state which persisted for two months more without any neurologic abnormalities, and was followed by complete recovery. He remained well for two years when another manic episode appeared. Exploration

through the old burr hole revealed no blood, and he recovered spontaneously and was discharged in two months. He then remained well for eight years, when, in 1941, a manic state reappeared, and within a few weeks was followed by left hemiparesis and a left Babinski sign. Exploration, at this time, uncovered a subdural hematoma over the right hemisphere. Its draining was followed by marked immediate improvement, but within a few days by relapse with the return of irrational behavior. There was again an exploration, and a fresh collection of blood was removed, with subsequent rapid complete mental recovery. Again, in a few weeks, manic symptoms reappeared although the neurologic examination was normal. A needle, introduced through the burr hole already present, released, once again, chocolate-colored fluid under tension; and, again, great improvement followed.

The patient then adjusted well for almost two years until January, 1944, when, at the age of 70, his mania returned. The neurologic examination was negative, and the spinal fluid was normal. Since his family refused neurosurgical intervention, he was treated conservatively and within about two months improved spontaneously.

In summarizing this man's story, one finds that he had at least five episodes of mania. In two, improvement occurred after the removal of subdural blood. In one, no clot was found by investigating through one burr hole only. In two, no exploration was done, and the patient spontaneously recovered. That the hematomas which were removed had precipitated the episodes of excitement in a predisposed individual is conceivable, and, in fact, strongly suggested by his quick responses to surgical therapy. To go further, theoretically, the thought is enticing that the attacks of mania from which the patient recovered without exploration may also have been caused by subdural bleeding, for such clots commonly resorb spontaneously.

In 1940, Allen, Moore, and Daly¹⁰ published a statistical study entitled, "Subdural Hemorrhage in Patients with Mental Disease." It was taken from the records of the pathologist of the Massachusetts Department of Mental Health. The authors studied the inci-

dence of this pathologic finding among 3,100 consecutive sudden and unexpected deaths among state mental hospital patients. In this number, 245 cases of subdural hematoma were found, an incidence of 7.9 per cent. Only a rough determination of the ages of the lesions from the condition of the blood could be done. Necessarily, no accurate correlation with the durations of psychoses was reported. The lesions varied from fresh blood to calcification, but the older hemorrhages predominated, and the majority were large and diffuse, usually involving extensive brain areas. In only 35 of these patients, was the subdural collection of blood the primary cause of death.

It is noteworthy that of the 245 patients in whom hemorrhage was found, 16 per cent, the largest single group, had been diagnosed, "psychosis with other brain and nervous disease." Generally, the exact neurologic diagnosis was unspecified. Another 21½ per cent had been classified as, "undiagnosed psychosis." The remainder varied among functional and organic classifications, but appeared with greater frequency in the latter group.

It is impossible to state how many, if any, of these psychoses were caused by the subdural hemorrhages. Dr. Moore, in discussing his paper, proposed the theory that the subdural bleeding may have been a factor in producing the psychoses, particularly in the arteriosclerotic patients. In view of the cases cited earlier, and the fact that the largest group in this series was obscurely diagnosed, often in the presence of neurologic abnormalities, it is fair to assume that some indefinite number of these psychoses were directly related to the hematomas.

In conclusion, it is felt that there is sufficient evidence that a subdural hematoma may be the precipitating cause of mental illness. Its manifestations may run the entire gamut of psychiatric abnormalities, including neurosis, mania, depression, paranoid delusions, and gross deterioration. Recognition of this relationship will call for a more liberal use of air studies on psychiatric patients, as well as trephination procedures, where the indications are proper. Electroencephalography may be of great aid. Only in this way, can this lesion be ruled out, and only in this way, can we learn ultimately with what frequency it causes mental illness.

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A SOMNAMBULISTIC ACT, WITH ITS PROBABLE MEANING

BY SIDNEY TARACHOW, M. D., Med. Sc.D.

A 48-year-old patient of the writer awoke one morning to find the light in a floor lamp near his head turned on. He found also that the lamp had been moved a small distance from its original position. He was certain the light had been out when he went to sleep and was also certain the lamp was not in the position in the morning which it had been in the night before. There were two other persons in the house, his wife and his 13-year-old daughter. They lived in a two-story house. That night, the wife and daughter were both asleep in their respective bedrooms upstairs, while he was asleep on a couch in the livingroom downstairs. For various reasons, he often slept downstairs.

The lamp was at the patient's head when he went to sleep. The patient was certain that no one could have turned the light on and moved the lamp without awakening him. To his knowledge, no member of the family, including himself, had ever engaged in any somnambulistic activity. The house was locked and had not been entered. The only conclusion to be reached was that the patient had turned on and moved the lamp in his sleep.

The patient was a neurotic who had come for treatment because of many anxieties and hypochondriacal preoccupations. He had been operated on for hyperthyroidism, but with no relief from his anxieties. Pruritis ani was a prominent symptom; the scratching was accompanied by experiences bordering on orgasm.

In the afternoon of the day preceding the somnambulistic act, the following incident took place. It was Sunday afternoon, and, as was often his custom, the patient was resting on the couch in his living room. He heard the voice of his gardener outside the house. He jumped up to caution the gardener about making a noise that might awaken the patient's wife who was taking a nap upstairs. He opened the window to talk to the gardener and suddenly found himself explaining to the gardener that he was downstairs alone, not with his wife, and that his wife was upstairs, also alone. The thought suddenly racing through his mind was that the gardener might think he had been having sexual intercourse with his wife,

and he was under great compulsion to prove to the gardener that circumstances made this impossible. There was also some pressure of having to impress upon the gardener that they would be unable to feed him that day. The sudden compulsive necessity to prove to his gardener that he was not having intercourse with his wife was unusual and disturbing. The incident stimulated a feeling of excitement and anxiety. The rest of the day passed without further incident. The somnambulistic act took place that night.

The gardener was an old man employed part-time by the patient for several years. As time went on, he slowly became almost a member of the family. The patient's wife fed him with increasing frequency, and finally he ate Sunday dinners with the family rather regularly. The old man enjoyed this situation and often fell into the posture of really being the head of the house. The patient perceived the old man in two ways. On the one hand he was an infantile feeding-rival for his wife's attentions, and on the other hand he was perceived as his father (now dead) in the authoritative and sexual position with relation to his wife, perceived, of course, as his mother. There was a wealth of material to indicate that the patient's wife played the rôle of mother to the patient, as indicated in the rivalries with the old man. As time went on, the patient built up a marked hostility to, and fear of, the gardener. The fear and rivalry were always especially acute on weekends, since, then, the gardener spent most of his time at the patient's house, and the patient and the old man worked together in the garden. Minor incidents were cropping up constantly to test the relative dominance for which both men were striving in terms of care of the garden and also in relationship to the patient's wife. On the Sunday afternoon in question, the patient was resting in the same room in which the somnambulistic act took place; this was also the room to which the gardener generally came when looking for the patient to discuss problems connected with his work.

Some of the patient's anxieties about his relationship to his mother are indicated by the following. Several months before the somnambulistic incident, the patient had worked through sufficient of his reactions to his mother to overcome finally a prolonged es-

trangement, come to a friendly understanding with her, and finally feel close to her for the first time in many years. The night following this, he had had a nightmare in which his father appeared in a terrifying way, lay on top of him and began to crush him.

Several weeks later he had had another nightmare. He was upstairs in his own home with his mother, while a party was going on downstairs. (The upstairs actually consisted only of bedrooms and a bathroom; his mother rarely visited him at his home.) A man came upstairs and began to annoy his mother. He seemed drunk. The patient wanted to beat him but did not dare for fear the stranger would be too much for him to handle. He decided to attack him when he fell asleep because of his drunken condition. The drunkard did finally fall asleep, and the patient attacked him. He thought he had killed him. The drunkard, however, showed signs of coming to; and, being in horrible fear of him, the patient ran downstairs, pleading with his mother to come with him. He kept pleading, in terrible panic, but she refused. He escaped from the house just as the man was about to clutch him. He ran up the street unclothed and still in great panic. His mother finally came out to reassure him and plead with him to return to the house. The patient's relationship to his wife was marked by much guilt over its incestuous aspects; there was fear of syphilis and intense jealousy and fear of infidelity.

It seems reasonable to infer that the anxiety stimulated in the afternoon before the incident of the lamp remained with sufficient intensity to be disturbing in sleep, that it was almost in the nature of fear of the dark in sleep, and that the light was turned on as a defense against the emergence of the fear. The unconscious meaning of the incident of the afternoon is clear in the light of the rivalries existing between the two men. This explanation was satisfactorily worked out with the patient who had no difficulty assimilating the meaning of the compulsive explanations of the afternoon or of the defensive functions of the somnambulistic act.

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MYOTONIC REACTION TODAY*

BY F. A. QUADFASEL, M. D.†

The electrical myotonic reaction, in contradistinction to most of the other pathological electrical reactions, was not discovered entirely at one time but has become known gradually. Unimportant points or occasional findings have been thought to be characteristic at times; the importance of others was not recognized. These discrepancies explain in part why the description of the myotonic reaction (although mentioned in every textbook of neurology) is very often not correct or complete.

The results of the electrical examination form part of the neurological status of a patient with myotonia. The electrical examination has been useful in confirming the diagnosis. Sometimes it was the only indication of the presence of the disease in other members of the family who had no complaints during voluntary activity. It is rare that no electrical myotonic reaction can be found when there is typical complaint. The writer observed one such case with pronounced atrophy in all limbs (not included in this study). There was, however, persistence on mechanical stimulation of the thenar (mechanical myotonic reaction).

The correct description of a pathological reaction must comprise the main characteristics and must be applicable to all cases in which it is said to be present. The characteristics of the myotonic reaction as given in this paper are not yet accepted, and their significance as a contribution to the pathophysiology of myotonia is not fully recognized. The writer will, therefore, first review the historical facts of investigations before Erb (Part I of this paper), of Erb (Part II), after Erb (Part III); then describe the "double reaction" and the myotonic reaction as it can be described today (Part IV), and the meaning of the myotonic reaction and its interpretation (Part V). He deals here only with the responses to

*This paper, from the neurological service, Bellevue Hospital (Dr. Foster Kennedy) and the neurological service, New York University, Welfare Hospital (Dr. S. Bernard Wortis), was completed during the tenure of the Charles Klingenstein Fellowship in neurology, department of neurology, New York University (Dr. E. D. Friedman).

†Since this paper was written, Dr. Quadfasel has been called into military service. He is now on active duty as a captain in the army medical corps.

examination with faradic and galvanic current and does not intend to discuss the investigations of electrical activity (action currents) during the stimulation of the myotonic muscles.

I

The historical facts regarding electrical examination in myotonia have been often misrepresented. One need not for the purpose of this paper discuss the imperfectly described cases of Bell (1830)* and Benedikt (1864, 1868). The first definite description of a case of myotonia, observed in 1866, is to be found in a book by Leyden published in 1874.† Benedikt and Leyden, on electrical examination, did not observe any deviation from the normal. The next publication (1876) is that of Thomsen, who described the disease in himself and in his family. Neither here nor in his second and third papers (1885 and 1892) does he report an electrical examination. Thomsen mentions, however, an electrical examination of his son by a Dr. Rothe. The results of this examination according to a letter from Dr. Rothe to Dr. Thomsen were to be published in the "*Militär-aerztliche Zeitschrift*, edited by Dr. Luthold in Berlin."*** The present writer has not been able to find this paper.

Thomsen's paper prompted Seeligmueller to publish, in 1876, a case which he had observed a year and a half previously. To him credit must be given for the first description of findings on electrical examination in myotonia. He described as characteristic the persistence of the contraction on faradic stimulation of the *Musculus quadriceps* and the *Nervus peroneus* "after the stimulus had ceased to act." The same persistence occurred on stimulation with *strong* galvanic current. The contraction on idiomuscular stimulation was confined to the site of stimulation. The galvanic and faradic excitability of nerve and muscle was found to be normal. The persistence of contraction was confirmed by Bernhardt in 1879, by Struempell, who called the disease myotonia congenita, in 1881, and by Petrone in 1881 (quoted by Marie).

*Quoted at length in Chapman.

†One brother of the patient had a similar condition. Leyden described difficulties in moving the tongue, the eyes, the hands and the legs, the inability to start walking, to get up suddenly, to dance and to run.

**The full title of the Berlin Journal, edited by Dr. L., was *Deutsche Militär-aerztliche Zeitschrift*.

Vizioli observed that the induced current produces energetic contraction which lasts some seconds after the cessation of electrical excitation, there being nothing noticeable with the galvanic current. (Quoted by Chapman.) A difference between faradic and galvanic current was again but differently described by Vigouroux (in Ballet and Marie in 1883). He stimulated the ulnar nerve: On faradic stimulation there was persistence of the contraction after the cessation of electrical excitation; on galvanic stimulation of the nerve there was a contraction without persistence (*"une griffe qui cesse avec le courant"*). In his paper of 1884, however, this difference is not pointed out.

It should be mentioned here that Pitres and Dallidet, in 1885, showed by myographic curves, the disappearance of the persistence after repeated stimuli. This was demonstrated later by G. Fischer (1886), Buzzard (1887), Charcot (1888), Blumenau (1888), and not until 1891 by Jolly, often credited with its first description.

Other investigators who reported electrical findings were: Peters (1879), Weichmann (1883), Westphal who, by the way, gave the disease the name Thomsen's Disease (1883), Longuet (1883), Engel (1883), Rieder (1884), Pontoppidan (1884), Vigouroux (1884).

II

It is through Erb's systematic description and his formulation that the "myotonic reaction," as he called it first in 1885, became well known. He gave credit to previous investigators and especially to Seeligmüller, who had first described electrical manifestations in myotonia. In his monograph on myotonia ("Thomsen's Disease," 1886) Erb summarized his findings as follows:

(a) From the nerve, "The mechanic, faradic, and galvanic excitability of the motor nerve is approximately normal quantitatively; in any case not increased, rather decreased. The contraction formula is approximately normal. All single induction shocks give short contractions without persistence and only summated stimuli, that is, faradic current or labile galvanic currents give tonic contractions with persistence." Erb did not find any persistence with galvanic current, not even with cathodal closing tetanus.

(b) From the muscle, "Mechanic, faradic and galvanic excitability is increased; with galvanic current there are closing contractions only and equally strong with anode or cathode. Any contraction is slow, tonic and persistent except those caused by minimal stimuli or single induction shocks; in many muscles strong faradic currents produce irregular undulating contractions, stable galvanic currents produce rhythmical successive waves of contraction."

In his later paper in 1889, Erb became more precise in his formulation of the characteristics of the myotonic reaction.

He still described the reaction of the muscle to mechanical stimulation as an *increase* in mechanical irritability. He mentioned as features of pathognomonic significance: the different response of nerve and muscle to mechanical and electrical stimulation, the slow tonic contraction of the muscle, the groove formation, the persistence, and the rhythmic undulatory contractions on galvanic stimulation.

As these undulations could not be found by most of the other investigators, Erb concedes that "this phenomenon is often rather difficult to elicit and is not more characteristic than the other features of the myotonic reaction, which are so readily produced. Although these undulations may be interesting from a scientific point of view, this phenomenon seems to me of no essential clinical or practical significance."

Erb's description of 1886 was confirmed by numerous investigators. And even now it is "confirmed" and repeated by many in spite of Erb's own later statement and in spite of the findings of many investigators after him.

III

An observation of some consequence was that of Bernhardt. In 1887 he noted that in the same muscle there were both slow, worm-like contractions and quick contractions upon galvanic stimulation. Bernhardt compared this to Gruetzner's observation on rabbit muscle: The same muscle reacted with a quick contraction to stimulation of the white fibers, and with a slow contraction to stimulation of the red fibers. On cutting the nerve, the red fibers were found to be more resistant; they had more cell nuclei. Thus the analogy seemed all the more striking, as the same increase in cell nuclei had been described in myotonic muscles by Erb.

The phenomenon itself had been described by Erb in 1886: "With the KCC one sometimes sees two contractions: first a quick, then a slow one (nerve stimulation and muscle stimulation?)." But Erb did not recognize the importance of this observation. In 1889, he quoted Bernhardt's observation and interpreted the slow contraction incorrectly as "stimulation of intramuscular nerve fibers by the virtual cathode."

Jolly, in 1896, and Hoffmann, in 1897, also observed the swift contraction followed by a slow one, on closing the galvanic current: "It is intriguing to refer the first to the stimulation of intramuscular nerve fibers, and the second to stimulation of the muscle itself." (J. Hoffmann.)

Pansini in 1907 was next to recognize the significance of the two contractions. He (after Babonneix*) analyzed the myotonic contraction as composed of two successive contractions: one quick (the primary or normal oxy- or tachycontraction) and the second slow (secondary, tonic or brachycontraction). He described the different form and qualities of these contractions: The first has a quick elevation and a quick descent. The elevation and descent form with the abscissa an isosceles triangle of great height. The contraction is in no way different from the normal. The secondary contraction, however, has the form of a cupola, with a period of descent (relaxation) much longer than that of the ascent (contraction). It is usually irregular, uneven, and may have several peaks. The latency period of the quick contraction is 2/100 of a second; that of the secondary contraction 15/100—18/100 of a second. The duration of the secondary contraction may be several minutes, depending on a strong stimulus, a well-rested muscle, and a pronounced myotonic state. Under the influence of well-timed, repeated stimuli, the height of the contraction diminishes and the tonic contraction gradually disappears.

Some other qualities mentioned by Pansini were: In the process of the formation of the quick contraction, the contraction spreads immediately through the whole muscle. The slow one spreads gradually as a peristaltic wave and fuses easily; the two contractions differ in fatigue, and they disappear at different times. He pub-

*The original monograph of Pansini was not available to the present writer for study.

lished curves showing the two contractions occurring at different times, both together, or one after the other. The quick contraction is more sensitive to the cathode; the slow one to the anode.

Kramer and Selling, in 1912, described independently the swift contraction followed by the slow one on closing the galvanic current. They stated clearly that this description is true only for stimulation at the motor point. The characteristic reaction of the myotonic muscle, a slow contraction around the electrode which persists for some time and slowly disappears, can be obtained in pure form on stimulation away from the motor point (electrode at the peripheral end of the muscle near the tendon; this has been called by others longitudinal stimulation.)

This difference in contraction according to the site of stimulation was noted by Bourguignon and Laugier in 1913:

"La forme de la contraction n'est pas liée à une action spéciale de chaque pôle, mais à la localisation de l'excitation."

"Le départ brusque s'obtient lorsque l'électrode négative est placée au point moteur, point où l'on excite surtout le nerf. Le départ lent et progressif s'obtient au contraire lorsque le pôle négatif agit directement sur les fibres musculaires."

The findings of Kramer and Selling were confirmed by Hauptmann (1916) who always found this difference, depending again on whether he tested at the motor point or distal from it.

Bourguignon described two values for the chronaxie of the myotonic muscle, one at the motor point, and the other, much larger, on longitudinal stimulation.

These results were confirmed by Kramer and Quadfasel. They found, for instance:

N. med	M. abd. poll. brev.	
	motor point	distal
1.0 σ	3.2 σ	50.0 σ
1.3 σ	0.6 σ	14.0 σ

In testing for chronaxie, it is absolutely necessary that the contraction from which the chronaxic value is obtained be *identical with that used for the determination of the rheobasis*. This is done best when the swift contractions are elicited from the motor point,

and the slow contractions, distal from it. Failure to use this technique may explain why some observers were not able to confirm this difference in values.

Examinations with different frequencies first used by Vigouroux (in Ballet and Marie, 1883) were later employed by Huet (1892), Pansini (1907), Cluzet-Froment (1913), and Kramer and Quadfasel (1933). The first papers mainly describe the type of reactions obtained with different frequencies. Vigouroux described experiments with the faradic current which was interrupted every six seconds and every one and one-half seconds respectively. The result was negative. (Although in the second instance there was a slight tendency toward persistence, we know now that the frequency of these stimuli was insufficient.) Huet examined with 165, 480, 660 interruptions per minute and obtained, depending on the strength of current, contractions which gradually disappeared. Graphic records of contractions were taken. Pansini described how with more than 15 stimuli and sufficient strength of current one can obtain tetanus from the nerve. Cluzet-Froment described the same phenomenon.

Kramer and Quadfasel used a specially constructed machine for the application of intermittent direct current. This apparatus permitted variation of (1) the strength of current (independent of the resistance of the body); (2) the frequency; (3) the time of closing and opening in each period. Depending upon the ratio of closing time to the length of interruption (opening time) and the strength of current, the result of the stimulation is tetanus as with ordinary faradic current or closing contraction and opening contraction as with direct (continuous) current.

They found a difference in threshold values for KCC, tetanus, and slow contraction on stimulation at the nerve, at the motor point, or distal from it, respectively. They examined also, under varied conditions of frequency and opening time, the different responses with reference to tetanus or CC. The difference between the amount of current necessary for a reaction at the motor point and distal from it is best seen if the closing time is short in relation to the opening time; less pronounced when they are equal; and not present at all when the closing time is longer in relation to the opening time.

Kramer and Quadfasel could thus show that the muscle fiber behaved differently under direct stimulation (away from the motor point) than under stimulation at the motor point or from the nerve.

Buessow, in 1934, independently found the quantitative excitability from the motor point (nerve) normal (quantities plotted against time) and obtained very different curves on stimulation of the muscle itself. The myotonic contraction is a tetanus. He refutes Bourguignon's concept of two groups of fibers in the myotonic muscle: The same fibers react in a different way under different conditions. He concludes that there is no isochronism between nerve and muscle in the myotonic.

IV

The normal muscle responds to galvanic stimulation with a quick contraction from the motor point only (excepting the reaction from the nerve); in myotonia we see a response away from the motor point as well: a slow worm-like contraction. The fact that these two reactions, the quick one and the slow one, can be elicited from different points of the same muscle has been called "the double reaction in myotonia." The response at the motor point is often that of a quick contraction, which is followed—as a grace note by another note—by the slow contraction. This type of contraction is not in itself a specific type of response in myotonia, as Hauptmann implies that Pansini thought it was. One can observe it sometimes in cases of nerve degeneration. That response can be analyzed into a normal contraction from the motor point and a slow one which in pure form can be obtained distal from it. This latter alone, it has been said, is the indication of the pathological function or of changes in myotonia. But it is not possible to define the myotonic reaction by a single feature.

In reaction of degeneration (RD) a response from any point of the muscle can often be observed and this is called "shifting of the motor point." But in myotonia there is no decrease to faradic stimulation, the excitability from the nerve is normal, and there is persistence of contraction to faradic stimulation. A slow contraction alone characterizes RD, and in complete RD it is the only response left until all muscle substance has disappeared. In a stage of recovery or in mild peripheral nerve lesions, one may obtain on

galvanic stimulation temporarily a quick contraction at the motor point but still a slow contraction on stimulation distal from it (longitudinal stimulation). But decrease of excitability, lack of persistence and the clinical picture should make the differential diagnosis not difficult.

However, not only on electrical examination, but on voluntary innervation as well, one can sometimes actually observe the two contractions—dual contraction in myotonia—which usually blend so that they cannot be observed individually. One of the writer's patients was able to innervate his biceps muscle separately. One could then observe distinctly the quick contraction of the whole muscle followed by a slow worm-like contraction passing over the muscle like a wave. The motion picture which has been made of the myotonic reaction shows this phenomenon very clearly.

The "double reaction" can be experimentally evidenced:

(1) On testing with galvanic current

A quick contraction at the motor point, a slow worm-like contraction distal from it.

(2) On determination of chronaxie

The values at the motor point are similar to those obtained at the nerve; the values obtained distal from the motor point (with slow contraction) are many times greater.

(3) On examination with intermittent direct current

Difference of values or reactions (KCC, tetanus, or slow contraction) at motor point and distal from it under varied conditions of frequency, strength of current, ratio of closing to opening time of each period.

The "double reaction" therefore must be described as a differentiating and characteristic feature of the myotonic reaction, together with other characteristics.

The development of our knowledge of the electrical reactions in myotonia from 1876 to the present shows, then, that to obtain uniform results we have to pay attention to: (1) The response to faradic and to galvanic current. (In faradic current it is necessary to state the frequency and ratio of closing to opening time of one period; with galvanic current the duration of the stimulus is of importance.) (2) The effect of different strengths of current. (3) The response from the nerve and from the muscle. (4) The site of stimulation in the muscle; the motor point or distal from it.

Seven cases of myotonia, two of them myotonia congenita, were examined, during the years 1938 to 1940 and the following responses could uniformly be observed. The reactions from the nerve were normal with the exception of persistence on stimulation with faradic and strong galvanic currents. On stimulation of the muscle with faradic current, the characteristic persistence of contraction was observed with disappearance on repeated stimuli or prolonged stimulation. On stimulation with galvanic current, a slow worm-like contraction was observed best on stimulation away from the motor point. Sometimes, especially in cases of atrophic myotonia, a constant contraction was elicited with even the smallest amount of current. On increasing the amount of current gradually (acrescence of current), the slow contraction always occurred at the same point. It was not possible to increase the strength of current beyond this threshold value without the slow contraction occurring.

It has already been pointed out that the "waves" which Erb and Bernhardt described very often are not to be found and that they are considered even by Erb as unimportant. The groove formation on galvanic stimulation is not consistently obtained either. Any current that produces a tetanic contraction produces persistence of contraction. It is especially important to state that there is no characteristic change of the formula of contraction, although often ACC is equal to or greater than KCC. Babonneix points out that the inconsistency or absence of polar reversal was found by Pansini, Huet, Dana, Langlois, H. White, Bourguignon; it was also observed by Kramer and Selling, and Kramer and Quadfasel. The opening contraction may be superimposed on the slow contraction or may be elicited after its subsidence or may not be obtainable. Its absence cannot be described as a constant feature of myotonic reaction.

No quantitative changes of electrical excitability can be considered as characteristic of myotonia. On mechanical stimulation also, a reaction of the muscle different from the normal occurs, but it cannot be measured or described in terms of increased irritability. It is a change in amplitude or intensity. In tetany, in contradistinction, there is to be found a true increase of excitability of the

muscle to mechanical and to electric stimulation.* Parallel to myasthenic reaction in myasthenia, increased excitability in tetany, cadaveric reaction in familial periodic paralysis, myotonic reaction is not demonstrable in all muscles. In all of these diseases, the pathological reactions are reversible.

There is no principal difference between the electrical reactions in myotonia and in myotonia atrophica (Hauptmann, Kramer and Quadfasel, Maas). The atrophy may, of course, influence the findings and obscure the results. This may be another reason for the discrepancy in the findings of different investigators who often based their conclusions on the observation of single cases.

It may be mentioned here again that clinically, in spite of the additional symptomatology of dystrophic myotonia—on the basis of larger material—one becomes aware that there is no fundamental nor real difference between the two forms of the disease. (Maas, Kramer and Quadfasel, Boeters, and others.) The writer observed the development of a pure Thomsen syndrome into a typical myotonia dystrophica, the different forms in different generations of the same family, and the occurrence of atrophies around the age of 20. Boeters observed in addition the different forms in two sisters and noted the development into the dystrophic form in some members of the family, while others showed the picture of a "pure Thomsen" until advanced age.

The intravenous injection of quinine dihydrochloride (0.65 grams or 10 grains) abolishes the myotonic reaction. This too was shown in film records. Quinine takes some time to become effective, as does prostigmin in myasthenia, while the excitability of the nerve in tetany changes instantly during the injection of calcium—a clinical indication of the different chemical mechanisms.

The accompanying table presents the results of electrical examination in myotonia obtainable with any customary apparatus for faradic and galvanic stimulation of nerve and muscle. The writer always uses an indifferent electrode of 8 cm. \times 12.5 cm. = 100 sq. cm. (3" \times 5"), a different electrode of 1 sq. cm. (D=1.13 cm.). Taken

*The characteristic findings in tetany are increase of electrical excitability of the nerves but usually not of all of them nor symmetrically on both sides. KCC can be obtained below five miliamperes. Increased excitability of the muscle to electric stimulation is not always present.

Nerve		Muscle	
FARADIC (interrupted current)		Motor Point	Away from Motor Point
Minimal strength	Unsustained tetanus (normal). Tightening for 1-2 sec. afterwards.	Same.	No response.
Medium strength	Tetanic contraction, persistence of contrac- tion; on repetition	Tetanic contraction, persistence of contrac- tion; on repetition	No response.
Strong currents	gradually decreasing and disappearing (to normal).	gradually becoming normal. Sometimes groove formation.	Localized tetanic contraction.
GALVANIC (constant current)			
Minimal strength	Single swift contrac- tion. No persistence of contraction.	Single swift contrac- tion. No persistence.	Slow contraction or continuous contrac- tion as long as cur- rent is allowed to flow.
Medium strength		Single swift contrac- tion and slow contrac- tion; or continuous contraction, sometimes gradually increasing. No persistence.	
Strong currents	Tetanic contraction. Persistence of contrac- tion.	Tetanic contraction and persistence.	Continuous contrac- tion, and slow sub- sidence <i>after</i> open- ing of current.
Accrescence of current	Possible without reac- tion beyond threshold strength.	Possible without reac- tion beyond threshold strength.	<i>Not</i> possible with- out slow contraction at threshold strength.
CHRONAXIE	Normal	Normal	Increased.

*Continuous increase.

into consideration, were the foregoing listed variables. These are the typical findings of electrical examination in myotonia—the “myotonic reaction” as it should be described today:

V

The myotonic reaction of a muscle is a response in the muscle fiber proper, set up by a stimulation—voluntary, mechanical, or electrical—of the resting muscle.

The description of myotonic reaction as “delay or relaxation,” giving merely the external appearance, implies that there is only one contraction and does not include the appearance of a secondary contraction. “Slow subsidence” is a more neutral term. The description as “persistence of contraction” is preferable, as it depicts the actual occurrence as shown by action currents. The writer may mention here that, mainly on the basis of electric action current examinations, the theory was discarded that we were dealing with a contracture and not an ordinary contraction of the muscle (Gregor and Schilder, Buerger and Shellong, Buessow, Lindsley and Curnen).

Clinical observation and electrical examination show—something often forgotten—that the transmission from the nerve and the first response to stimulation is normal. The contraction which occurs simultaneously with or secondary to that response is abnormal.

It is significant that the muscle action is not impeded after the myotonic response of a muscle and its limb that were at rest is overcome. No substitution mechanism usually works with the same perfection as the normal one, which would imply that after the myotonic response is overcome the muscle is able to function like a normal one as long as it is uninterruptedly working. This warming up, however, may take as long as five minutes, depending on how strongly the patient innervates his muscles. “Myotonia depends on suddenness of movement and the strength I put in it.” “The larger the muscles the more affected they are; that is why I think the legs are always worse.” “After I start to get up, the movement may go on even if I do not want it; I am made to stand up.” “I keep the movements in time, make them slowly so that I can keep up with them.” “I feel the limb as a dead weight; it is

away from the nerve." "If you try to fight myotonia, myotonia fights back at you. You have to baby her off." These remarks of an intelligent patient show well how the patient experiences what the physician observes.*

There is no myotonic response to reflex contraction (tendon reflexes), to single induction shocks, to galvanic stimulation from the nerve and motor point. But there is a very decided myotonic contraction of the abdominal muscle and the diaphragm on sneezing, which may be experienced as very painful. This fact indicates that the time element and the force of the contraction are of importance. That is brought out, too, by the examination with currents of different frequency and short closing time in relation to the opening time of one period.

The double reaction leads to the conclusion that the localization of pathology must be in the muscle because it is away from the motor point that the pathological slow contraction is obtained best. The electrical examination and its results still support strongly the concept of muscular localization of the pathological functional changes in myotonia. Babonneix stated that in 1907 in the following words: "*La réaction myotonique constitue un argument de première importance à invoquer en faveur de la théorie qui réattache la myotonie congénitale à des lésions primitivement et essentiellement musculaires.*" Consideration of this statement could have saved much useless theorizing and prevented some wrong conclusions.

Other experiences that could have saved some investigators from drawing wrong conclusions were those of Grund in 1913 (published in 1919) and, independently, those of Kennedy and Wolf in 1937. They found that after spinal anaesthesia, the myotonic reaction in the paralyzed and insensitive leg was "as profound as in the normal state." Schaeffer, in 1921, found that after anaesthesia of the nerve and intramuscular nerve fibers myotonia was still present in the muscles. All these observations point to a peripheral disturbance in myotonia and should exclude all theories that try to explain the myotonic reaction by cerebral or spinal reflex mechanisms. The

*One patient insisted that his sister lost her myotonia for four weeks after childbirth. The sister was not available for examination. Cases in women are said to be generally milder.

abolition of the myotonic reaction in the "normal" or paralyzed limb on administration of quinine may be mentioned here as another evidence of the rôle of peripheral mechanisms.

The double reaction on electrical stimulation corresponds to the dual contraction of the muscle on voluntary innervation. The reaction of the muscle by itself is, of course, different from the action and counteraction in the natural movement of the limb. Whether here nonperipheral mechanisms play a rôle cannot be determined by this type of electrical examination. These mechanisms are necessary to overcome the myotonic state, but they are not the essential part of the disease. Recently action currents have been used to show the compensatory and reflexive activities of the other muscles in willed movement of the myotonic muscle. (Denny-Brown.) The writer cannot discuss this work here.

The dual or double character of the response has been evident from the very first observation. Its significance was first recognized by Bernhardt. Several explanations were offered. It was assumed that there might be different kinds of muscle fibers in analogy to red and white muscle fibers of the rabbit, (see the foregoing, page 201); that the cause of the slow contraction was the excitation of the sarcoplasm and, of the quick, the contraction of the muscle fiber. Pansini spoke of the "*doppia personalità del muscolo*." Other explanations were that there were two different kinds of innervations in the muscle; that the dual response was an effect of the action of different poles (stimulation of intramuscular nerve fibers by the virtual cathode); and finally that the quick contraction was due to stimulation of intramuscular nerve fibers and the slow response to stimulation of the muscle fiber itself. All these explanations of the double reaction also point to the muscle itself as the site of the disturbance.

On stimulation, the local condition in the nerve-muscle tissue is altered in such a way as to lead to a contraction if the stimulus is adequate. Nernst thought that on galvanic stimulation after the closing contraction takes place the cells "accommodate" themselves to this alteration, the excitatory state, and that the change to the nonexcitatory state on opening the current leads to another, the opening contraction. There is no accommodation to faradic current (on account of the constant change and the short duration

of the stimuli). On this concept Reiss based a theory of the phenomena of the RD, and Kramer and Selling used it for a detailed interpretation of the phenomena of the double reaction in myotonia. Reiss assumed that accommodation is absent or occurs very slowly in RD. The same is true, according to Kramer, for myotonia.

Therefore, one can observe on galvanic stimulation of the muscle, that the contraction may last as long as the current is closed, that the accrescence of current is not possible (as there is no accommodation to the respective strength of current at each moment) and that there is no opening contraction (a consequence of accommodation). If the accommodation is only delayed, a slow contraction results instead of a sustained one. In myotonia (in contradistinction to RD) normal reaction with accommodation is still present on stimulation from nerve or motor point.

Kramer and Quadfasel showed that their results could be interpreted to agree with this theory. Chronaxie is normal on stimulation from the nerve, the accommodation being present here, and it will be greatly increased on stimulation from the muscle where the delayed accommodation leads to longer "effective duration" and correspondingly greater chronaxie.

The results of the experiments with intermittent direct current too could be explained by this theory. The effect of the interruption (which is determined by the time of closure and strength of current as well) was thought to be dependent on accommodation. The slow appearance and probable long duration of accommodation in the myotonic muscle would then be responsible for the difference of results on direct distal muscular stimulation compared to those of stimulation from nerve and motor point.

Buessow, too, refers to Kramer's theory for the interpretation of his conclusions: In myotonia effective duration is increased, threshold of intensity decreased, and threshold of tetanus identical with absolute threshold.

Buessow has pointed out that this interpretation is a description and not an explanation. It is useful, nevertheless, the present writer thinks, in that it enables us to describe the results of electrical examination in terms of one common denominator, absent or delayed accommodation. It is a challenge to the biochemist to dis-

cover the physiological basis of accommodation, a substance present or absent, a faulty process, or a faulty structure.

Recently chemical explanations of the myotonic reaction have been in the foreground. These chemical theories, however, are not modern at all. Jolly suggested such an explanation in 1891 and compared the veratrine contraction to that of myotonia in 1895, and again, more in detail, in 1896.

"The cause of the (myotonic) phenomenon is to be found rather in a disturbance of the chemical processes in the muscle than in its well-known anatomical changes." (1891.)

"In myotonia as well as in myasthenia there exists an abnormal state of the muscles, a change, we can say, of the chemical processes in the muscle. This change is the cause of the contraction phenomenon.

"Certain alkaloids, while they act, produce similar states of the muscles; Veratrine, Physostigmine, and Digitoxin similar to that of myotonia . . . Protoveratrine similar to that of myasthenia. . . .

"Following my observations on electrical exhaustability, one naturally thinks of a medication which according to its pharmacological action produces the reverse of the myasthenic reaction, i. e., the myotonic state. The alkaloids concerned (Veratrine, Physostigmine, etc.), are not free from side actions on the nervous system. Their application should be tried first only in hospitals under medical control. Such attempts, however, are justified as they represent nothing but the transposition of exact physiological experiences to pathological states, which can easily be recognized and followed up." (1895.)

The simple assumption of increased acetylcholine or decreased choline esterase has no factual support, but this is not the place to discuss the work done using a chemical approach. Electrical examination cannot contribute to any solution in that respect. Nothing can be contributed by electrical examination to the cause of myotonia.

SUMMARY

1. The history and facts of clinical electrical examination in myotonia before Erb and after are described. The different variables which should enable one to obtain uniform results are stated. The regular findings on electrical examination are given, leaving out inconstant and occasional findings (like absent opening contraction, polar reversal, waves).

2. The main characteristics of myotonic reaction are the persistence and slow subsidence of contraction on faradic stimulation of nerve and muscle and the double reaction of the muscle on galvanic stimulation, i. e., a quick contraction from the nerve or motor point and a slow, worm-like contraction or sustained contraction on stimulation away from the motor point.

3. The conditions under which and the means by which the double reaction can be demonstrated are described.

4. The electrical myotonic reaction suggests the localization of the pathological processes in the muscle proper. This is supported by action current examinations, experiments with anaesthesia of spinal cord, nerve and intramuscular nerve fibers, and experiments on myotonic goats. The effect of quinine is not against this assumption. This conclusion is in agreement with the investigations of Buessow, Kramer, Ravin, Brown, Denny-Brown, and others.

5. The double reaction of the myotonic reaction resembles RD, but in myotonia there are no quantitative changes on stimulation from the nerve, and quinine may temporarily abolish the myotonic reaction. There is no persistence in RD.

6. There is no principal difference in the electrical response of congenital and atrophic myotonia, as there is no principal difference clinically between these two conditions.

7. There is no theory as yet that harmoniously combines the anatomical, electrical, clinical and (contradictory) chemical findings in myotonia. But, whoever attempts to present such a theory will have to take into consideration the "double reaction" of the muscle in myotonia.

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REVIEW OF THE RESEARCH WORK OF THE NEW YORK STATE PSYCHIATRIC INSTITUTE AND HOSPITAL FOR THE YEAR 1944*

BY NOLAN D. C. LEWIS, M. D., DIRECTOR

With our country involved in a world war necessitating the utilization of the talents and skills of all types of research workers, including those in the biological sciences of which psychiatry is a division, and with the restrictions and priorities on important materials, there has been a general reduction in laboratory and clinical investigations pertaining directly to civilian life and interests. At times, it has been necessary for investigators to shift their efforts and objectives from long term projects in fundamental research to participate in some activity less involved or perhaps of more immediate problem-solving value to the armed forces.

Despite this situation, which has prevented or interrupted work on certain problems, the workers at the New York State Psychiatric Institute and Hospital have been able to continue some important studies and to initiate some new ones which bear the classical characteristics of promising to elucidate factors in neurology and psychiatry that will be utilizable in clinical practice for many years to come. Some of these problems have a direct bearing on the present war effort, while others are of a basic scientific significance with as yet no obvious immediately useful function.

"The popular idea seems to be that an investigator sets out with the intention of making a particular discovery such as a new element or a cure for a certain disease, but every scientific worker knows that real discovery, as distinct from invention, is never achieved in this way. A discovery is the process by which an idea of new relationships is revealed. . . . The origin may be a chance observation which suggests a hitherto unappreciated relation and leads to the formulation of a hypothesis which if possible is then deliberately tested by experiment. The history of the discovery of insulin may be given as an illustration. The fundamental discovery here was made by chance observation that removal of the pancreas produced diabetes; from that time onward it was evident

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that if the missing pancreatic function could be replaced a cure would be possible and it was justifiable deliberately to search for some means of doing this. But the search was in vain until another new idea came into physiology by reason of the discovery of autacoids. From this point on all was clear in theory and it is no detraction from the merit of subsequent work to say that the final happy result depended principally upon inventive technic and manipulative skill and only in a lesser degree upon discovery. Discoveries are infrequent . . . and they mostly come out of the fullness of time." (Evans: *Science* 1928, 68, 259-284.)

In 48 years, there have been published from the Psychiatric Institute 939 major items, not including such productions as minor reports of work, editorials and book reviews. Of these, 579 were in the basic sciences of pathology, biochemistry, bacteriology, and other experimental procedures, and 360 were on clinical, observational levels and topics. Many of these were books and monographs of considerable importance.

TRAINING FUNCTIONS OF INSTITUTE

In addition to its research publications, the Institute has exercised other functions. The following list of students indicates the spread of its training activities, and reveals the unique opportunities afforded for disseminating psychiatric knowledge during a 15-year period.

Undergraduate medical students (approximately)	1,600
Psychological students	1,000
Nurses (including postgraduate and affiliating)	2,300
Students in social work (since 1932)	300
Psychiatrists from State hospitals in postgraduate courses (14-year period)	300
Psychiatrists from outside State service in postgraduate courses (14-year period)	75
Psychiatrists trained in neuropathology (New York State)....	15

In addition to these items, special training has been given on an individual basis to many other pathologists, clinical psychiatrists and psychologists.

THERAPEUTIC PROCEDURES AND INVESTIGATIONS

Although patients are admitted to the Institute for the particular purpose of investigating their disorders, they receive modern therapy, and the outpatient department has attempted to serve the interests of the community. The first cases were taken in the outpatient department in November, 1929; and the first cases were admitted to the Institute hospital service in January, 1930. Since then, 3,740 adults and 873 children have been under its immediate care and investigation. During this period, 91 residents and 67 voluntary residents (externes) have been assigned to, and trained in, the hospital service. (As many have been trained in the last five years as in the previous 10 years.) Ten physicians have served in the capacity of senior and junior psychiatrists in occupying the five positions available on the clinical service. With this very brief review of the past serving as a background, current problems and aims may now be presented.

BRIEF PSYCHOTHERAPY

An efficient brief psychotherapy has been the objective for which many investigators are searching. It is well known that deep psychotherapy is a very prolonged and time-consuming procedure. In the cases of war neuroses, because of shortage of personnel and lack of time, abbreviated forms of psychotherapy (mainly narco-suggestion and narcoanalysis) are used successfully. The Institute has been attempting to apply these methods more effectively in the treatment of the ordinary civilian neuroses. It is well known, of course, that the structure of the ordinary neuroses deviates pathogenetically from that of the war neuroses. Nevertheless, especially in the anxiety states, many mechanisms are similar. Even if unsuccessful results occur in the common neuroses with these briefer psychiatric procedures, they will at least demonstrate the structural differences between the civilian and the war neuroses and will probably clear the field for other attempts at abbreviated psychotherapy. Combination treatment with certain drugs, such as sodium amytal, seconal sodium or pentothal sodium, given intravenously, influencing emotions and the central regulative vegetative mechanisms, plus psychotherapy in which active suggestion or analytic interpretations are applied, should prove to be effective.

TREATMENT OF PREMENSTRUAL SYMPTOMS

In many female psychiatric patients, premenstrual aggravation of psychotic symptoms has been observed, particularly about a week prior to the onset of the menses. This is not unlike the premenstrual tension state occurring in normal women as reported in the literature. It is postulated that both these conditions are due to the sympathetic nervous system being affected by an excess of unantagonized estrogen resulting from deficient ovarian luteinization with a decreased production of progesterin. In order to make up for the deficient luteinization or for the excess of ovarian hormone in the blood stream, corpus luteum is given by mouth or by intramuscular injection. This same approach has been utilized in psychotic patients with premenstrual accentuation of psychotic symptoms, giving them 20 mgs. of progesterol by mouth daily for the two-week period prior to the onset of the expected menses. The results in a small series of schizophrenic patients indicate that the premenstrual aggravation of psychotic symptoms is definitely relieved, although there is no observable change in the final mental condition of these patients.

AMBULATORY INSULIN AND ELECTRIC SHOCK

The Institute has been utilizing a combination of ambulatory insulin and electric shock therapy in patients who have had a previous course of electric shock and who have had a tendency to relapse after the electric shock has been discontinued. The result of this combination has been gratifying in many instances. In other patients who have had electric shock and have started to relapse after that therapy has been discontinued, ambulatory insulin was substituted immediately in order to obtain the maximum improvement. This, too, has been effective in many instances.

EARLY SCHIZOPHRENIA AND PSYCHONEUROSIS

There is a group of psychiatric disturbances in which the differential diagnosis between psychoneurosis and early schizophrenia is extremely difficult. An intensive study of these cases is being made to evaluate the specific symptoms which might indicate an early schizophrenia and to differentiate this from other psychoses both clinically and chemically, or from the psychoneuroses. The

known clinical picture of schizophrenia rarely includes the clinical manifestations of the early cases; and a great deal of uncertainty prevails in the diagnosis, prognosis and even treatment of these early cases. It is planned to utilize, in addition to careful clinical observation, mescaline and sodium amytal intravenously as two laboratory tests in order to establish a differentiation. This work is being done by Drs. Phillip Polatin, and Paul Hoch.

ELECTRIC SHOCK DURING PREGNANCY

Several patients were treated with electric shock therapy during pregnancy. It was found that there is no tendency to spontaneous abortion from such therapy; and, after delivery, there has been no observable pathological effect upon the newborn child. The electric shock, therefore, does not seem to influence the smooth muscle of the uterus.

EFFECTS OF PROCEDURES ON MEMORY

The following work is being done by Dr. Hoch of the clinical staff and Dr. Henry W. Nissen of the department of psychology:

1. *The effect of sodium amytal on the defects of memory produced by electric shock therapy.* It is known that in many cases sodium amytal releases or makes available memories which do not readily come to expression. This study is designed to ascertain whether recent memories obliterated by electric shock are restored by sodium amytal. The results may serve to clarify the nature of the psychological effects of this drug, e. g., whether it improves the remembering function in general or whether instead, it acts primarily as a disinhibitor of emotional impressions.

2. *Investigations of memory impairment by electric shock.* This investigation should first serve as a check on previous investigations on memory as related to electric shock and, second, give some indication of the rôle of emotion in this function as both neutral and emotionally toned memory tests will be used in these studies. The results of Zubin and others show that, whereas electric shock therapy (ECT) abolishes almost entirely the ability to recall recently learned material, this therapy affects recognition (the feeling of familiarity) only slightly. This indicates that the memory function concerning recall and relearning is different from that of recognition.

In another experiment patients are treated with ECT, sodium amytal and dilantin combined. Sodium amytal, given intravenously, diminishes, or in certain doses abolishes, the possibility of producing a convulsion. The same thing is true of the actions of other drugs like pentothal and dilantin. The patients are treated with the regular ECT but the production of convulsions is prevented by a previous administration of the drugs mentioned. This experiment should clarify the important question: Is a convulsion actually necessary for the improvement of the patient, or would electric stimulation of the brain without a convulsion be sufficient to achieve improvement?

"ELECTRONARCOSIS" EXPERIMENTS

Experiments concerning electric stimulation have been carried on for several months, by Dr. Hoch and Mr. Walter Rahm. A so-called "electronarcosis" apparatus was constructed which uses a direct current which can be interrupted slowly or rapidly. The experiments of Leduc and others with electronarcosis were duplicated. The interesting observation was made that all the reports indicate that electronarcosis is actually a state of prolonged electric stimulation of the brain, but not a real state of narcosis. The electric stimulation of the brain without producing a convulsion will be used in the near future on patients to study effects and compare results with electric shock treatment.

ACTIVITIES OF CHILDREN'S SERVICE

The children's service has been under the care of Dr. Bernard L. Pacella during the past year, with Dr. Margaret Mahler, acting as consulting child psychiatrist, both to the inpatient and the outpatient children's service. Children's conferences are conducted weekly with Dr. Mahler presiding. These consist of thorough case presentations by the resident physicians, following which the problems of diagnosis, management and treatment are discussed. The social service department participates actively in these conferences. An important educational feature of the children's service consisted of the arrangement of a program of evening lectures in child psychiatry which continued through February, 1944. A selected group of prominent speakers in this field

was included in the program, and many important aspects of child guidance and child psychiatry were discussed. It is planned to collect this series of lectures to publish in book form, edited by some member of the Psychiatric Institute staff.

The children admitted to the children's service have been chiefly of the primary behavior disorder group, with the neurotic type predominating. Cases are carefully selected for admission in order that they may provide suitable material for long-term study and therapy. A new form of admission-method has been developed in which a student social worker interviews the family and obtains a history from the parents before the physician sees the parents or the child. The social worker then relates the history to the physician who then makes his examination of the patient. The disposition of the case is discussed with the social worker and the parents or alone with the social worker, who then becomes responsible for the subsequent proper referral of this patient either to the ward service of the Institute or to some other center which has been recommended. In this way, there is substantial saving of time for the examining psychiatrist and also an early, strongly established rapport between the social worker and the parents of the child. This, again, is a time-saving device for the physician. In addition, this method acts as an important teaching technique for the student social worker.

A special study by Drs. Mahler, Luke and Daltroff was conducted, dealing with disorders in children which were characterized by tics of all types. Some of these observations have already been presented by Dr. Mahler at the New York Psychoanalytic Institute and also in a lecture delivered at the Psychiatric Institute. This study required an exhaustive survey of the developmental history of these children, particularly in the neuromotor capacities and a careful evaluation of motor manifestations of all types. Extremely interesting and original concepts have been developed by Dr. Mahler as a result of this study and will be published in the near future. Miss Margaret Naumburg has continued to devote her time generously to the study of artistic productions of children. Much material is being collected which will probably be published in book form in the near future. Some of this work, both by Dr. Mahler and Miss Naumburg, has already been published in *THE PSYCHIATRIC QUARTERLY* and "The Nervous Child."

SOCIAL SERVICE DEPARTMENT

A complete staff of social workers from December, 1943, to December, 1944, has made possible a better integrated social service department than in previous years. All psychiatric services have been completely covered by social service with the assistance of the student body in psychiatric social work field training from the New York School of Social Work. There have been 16 part-time students in constant attendance (17 since April) throughout the year. As they are less experienced than mature workers, the students are carefully supervised in each case work step and carry more than half the department's case load, as recognized staff members. A monthly average of 21 newly admitted cases and nine reopenings has been added to the case load throughout the year's period (December, 1943-1944).

In the care of hospitalized patients at the Institute, results in social treatment depend upon case work initiated at the time of the patient's admission and continued after hospital discharge during a period of community readjustment. This requirement for social service carryover after hospitalization exists routinely with all patients entering the hospital, as many patients, including those whose improvement has been accelerated through administration of "shock" therapies, are not recovered on return to the community and continue to reflect chronic problems of social and personality maladjustment. Study and social treatment of the patient's family situation to bring about a better understanding by hospital and family of social and personality problems of the patient necessitate regular social treatment with the family from the beginning. This includes social planning eventually focused with the patient in correlation with the patient's improvement.

REFERRAL TO SOCIAL SERVICE ACCELERATED

A new plan, put into effect in March, 1944, has proved successful in accelerating early referral and assignment to social service of newly hospitalized adults. Under this plan, social service assists with the admission of adult cases by routinely interviewing relatives. Brief descriptive data of the relatives' concepts of the problem and the current family situation are obtained, and social service function is described. Thus, the chiefs of staff and social service

are immediately oriented to the patient's social situation, the urgency of social service assignment can be estimated, and the family prepared at the outset for such contact. Each case can thus be cleared with the chief of staff for referral within a week.

SOCIAL SERVICE CONFERENCES

Throughout the year, the chiefs of staff have held short, weekly, case-planning conferences on a series of cases on their services with the social service staff worker or student and the psychiatrist treating the case. These have served additional values in student teaching concerning psychiatric diagnosis and treatment and implement correlation between psychiatric and social services, which many students and psychiatrists in training are experiencing for the first time in relating their special functions to the work of an allied professional field.

During the fall of this year, a monthly case presentation by psychiatrist and social worker illustrating teamwork between social and psychiatric services has been instituted as an interdepartmental conference activity. Through this type of group meeting the functions of the psychiatrist and social worker are considered in their complementary working relationships, and group discussion on dynamics, treatment aims, and treatment method in both social and psychiatric areas is possible.

EDUCATIONAL WORK IN SOCIAL SERVICE

Ten theses by students in partial fulfillment of their requirements for graduation from the New York School of Social Work have been completed to date for the past year's period (1944). Three of these were carried in relation to the study mentioned before of children treated for ties. Two featured findings on followup studies of such children, and one is a study of the emotional problems of children with ties. The others deal with the following subjects relative to cases carried by social service in the Institute: (1) psychosomatic medicine in the case work field; (2) direct case work with 10 patients; (3) meaning of expressed attitudes of mothers toward children's behavior; (4) a study of 50 cases of short-term social service contact; (5) placement and parent-child relationship; (6) a study of the father-son relationship of 10 boy patients; and (7) the meaning of separation to a child in a mental institution.

Three groups of student nurses and one group of 34 army medical officers attended a course of six lectures by the social service staff covering functional agencies and community facilities with case presentations illustrative of psychiatric social work. Recent developments of all social agencies to meet pre- and postinduction problems were reviewed. The student nurses were affiliates from Presbyterian Hospital, New York, Skidmore College, and the Royal Victoria Hospital of Montreal. Following their lecture course, selected students from Skidmore and all students from the Royal Victoria Hospital spent from one to two weeks in the social service department under staff supervision, making single followup calls in the homes of former patients for research purposes. The course for the army officers was geared to cover the contributions and uses of psychiatric social work in selective service procedures and in military and rehabilitation centers.

OCCUPATIONAL THERAPY ACTIVITIES

In spite of a number of resignations, the department of occupational therapy has been fortunate in filling the positions left vacant, within a reasonable length of time.

All patients in the hospital have been included in some activity of the department, and the greater number have participated in all activities—physical training, occupational therapy and social activities. The program as usual is varied to meet, in so far as possible, the individual needs of the patients. In the past year there has been increased emphasis on the group of patients working the art media; and there have been some gratifying and interesting results. A hand printing press has been added to the equipment with sufficient interest evidenced at the start to justify the plan to utilize this craft for a group of male patients.

Teaching activities have been continued with the affiliate nurses and the Columbia students in occupational therapy; and, this year, they have included some time given to the military group.

CLINICAL AND LABORATORY STUDIES

PROBLEM OF ELECTRIC CONVULSIVE THERAPY

There are numerous clinical and laboratory studies of the relatively "long term" variety that command attention. Observations

previously made on the complications and sequelae of electric shock therapy in approximately 300 treated cases which were studied for many months subsequent to shock treatment were summarized and presented before the section of neurology and psychiatry of the New York Academy of Medicine by Dr. Bernard L. Pacella and have recently appeared in the "Bulletin of the New York Academy of Medicine." It may be noted that there were no serious or incapacitating complications and that the untoward reactions which did occur were usually of a very temporary nature. It was concluded that the possible complications which are entailed by the use of convulsive therapy are far outweighed by the therapeutic benefits resulting from such treatments in properly selected cases.

Two of the patients who received electric convulsive therapy exhibited spontaneous convulsions. Electroencephalograms taken on these patients prior to therapy confirm an earlier impression that only those patients with latent convulsive tendencies, as revealed in brain wave tracings, were prone to develop posttreatment seizures. A complete summary of these observations was presented by Dr. Pacella before the annual meeting of the American Psychiatric Association in Philadelphia last May.

Electroencephalographic studies in connection with convulsive shock therapy are still being continued and tracings are taken on all patients prior to and after treatment. Particular attention is focused on the effects of electrically induced seizures on patients with abnormal electroencephalograms prior to therapy. Thus far, with the exception of the two cases just mentioned, no serious or untoward effects have been observed.

A series of patients are being subject to the Minnesota Multiphasic Personality Inventory Test in order to determine whether any relationship exists between the personality as revealed by this test and the response of the patient to convulsive shock therapy. In addition, these tests are repeated subsequent to treatment in order to determine whether any significant changes in the personality are revealed by this test. Further correlation between any changes in personality, if such do occur after convulsive treatment, will be made in relation to the clinical response of the patient.

UNIPHASIC CURRENT STUDIED

Recent publications of other investigators have indicated that the administration of a rectified alternating current which produces a pulsating uniphasic current will require less voltage and a lower milliamperage to produce a convulsion than the ordinary alternating current which is now utilized in the commercial electric shock apparatus. The uniphasic current is said to be more desirable because it produces less memory disturbance in the electrically treated patient and also produces less disturbance in the electroencephalogram. In order to verify these previous observations of other investigators, Dr. Pacella has had an electric shock set constructed which employs this principle. However, only a few patients have thus far been shocked by this current, and as yet no significant observations have been recorded.

"SHOCK" THERAPY IN CHILDREN

Various forms of "shock" therapy have been employed on the children's service, but they should be applied with extreme caution. Although the cases are still too few to warrant any conclusion, it appears in a few cases that electric convulsive therapy and insulin coma treatment tend to increase the aggressive responses of children. On the other hand, ambulatory insulin for a period exceeding several weeks, tends to diminish the aggressive responses of children.

ELECTROENCEPHALOGRAPHIC STUDIES

The department of encephalography has continued to be very active during the past year. Routine examinations have been made on all patients admitted to the hospital and in all cases after termination of any form of "shock" therapy. The facilities of the department have also been extended to the various State hospitals in the Metropolitan district and to other institutions which have availed themselves of the use of the Institute's electroencephalographic consultation service. A number of electroencephalograms have also been done on military personnel, particularly members of the air corps. These tests have been of especial importance, not only for research purposes, but also to determine whether patients had objective evidence of epilepsy or of some structural damage of the brain particularly where the clinical diagnosis was open to question.

Approximately 1,000 electroencephalographic records were taken during the year. Included in this number are tracings taken on monkeys for investigational purposes. It has been possible to carry out such a heavy program because of the development and employment of a new type needle electrode which has appreciably cut down the length of time required for such electroencephalographic recordings.

Studies are being conducted to determine whether there is any correlation between the personality of patients as revealed in the Rorschach test and the character of the encephalographic pattern obtained in the same individuals. This study also involves an evaluation and comparison of the Rorschach pattern in epileptics who showed abnormal electroencephalograms, in nonepileptics who exhibited latent convulsive tendencies as revealed by the brain waves, and in patients who showed these patterns as a result of convulsive therapy. This program had been temporarily discontinued because of the leave of absence of Dr. Zygmunt A. Piotrowski, for work with the army but has now been resumed upon his return to the Institute.

The investigation of brain wave tracings in the different groups of psychiatric patients continues. A tentative report of these observations was presented by Dr. Pacella before the interhospital conference of the New York down-State hospitals on May 3, 1944. An important question which is not yet settled concerns the possible changes in the electroencephalographic picture which might occur with changes in the psychiatric status of the patients. It has been found thus far that manic-depressive patients and paranoid schizophrenics reveal the highest incidence of normal patterns, whereas the catatonic form of schizophrenia shows the greatest incidence of abnormalities. An interesting case of acute panic in a 10-year-old child was associated with an abnormal record during the height of the illness. With improvement of the child, however, the electroencephalogram became normal, thus, perhaps, revealing a true psychosomatic relationship.

With the collaboration of Dr. Polatin, studies have been conducted on schizophrenic patients with auditory hallucinations. Sufficient evidence has been accumulated to indicate that an actively hallucinating patient shows fairly characteristic changes in the oc-

capital alpha rhythm. These findings are to be summarized and reported in the near future.

COLLABORATION WITH OUTSIDE INVESTIGATORS

The department has collaborated with Major Benjamin Balser, formerly chief neuropsychiatrist at the Mitchell Field Station Hospital, on a project involving flying personnel. Approximately 200 electroencephalograms were taken of men in the air corps who had returned from active combat overseas and who were suffering from various degrees of "flight fatigue." The results have been analyzed and correlated with certain blood chemical studies. A report of the findings has been filed with the air corps surgeon in Washington, D. C., and cannot be made public at the present time.

In collaboration with Dr. Wilber Duryea of the New York Post-Graduate Hospital, electroencephalographic examinations have been made in over 45 cases of scleroderma. Certain characteristic abnormal features have been detected in the brain wave tracings in a relatively high percentage of these cases, thereby suggesting the possibility of actual structural changes in the brain in this disease.

A long-term study is being conducted with Dr. Frederick Stern of the electroencephalographic department at the Montefiore Hospital, in which an intensive survey of all chronic degenerative diseases is being made. Correlations are being attempted between the degree of structural brain damage, the psychiatric symptoms and the electroencephalographic findings. An interesting finding which has been recorded recently is that of a chronically ill patient who developed a spontaneous subarachnoid hemorrhage and in whom electroencephalograms had been taken prior to the accident and were taken subsequent to the accident. The persistence of abnormal features in the tracings subsequent to the hemorrhage in spite of the disappearance of the severe neurological findings may have some bearing on the mental sequelae reported in a number of these cases.

RESEARCH WITH ANIMALS

Animal studies have been continued. Brain wave tracings were taken on monkeys which were subjected to operative procedure and as a result exhibited Jacksonian and generalized convulsions for

many months subsequent to the operation. An improvement in the technique for obtaining electroencephalograms in these monkeys was made possible by a mechanical appliance constructed by Mr. Henry Clodius, a technician in the Institute. This apparatus is capable of holding the monkey's head firmly so that electroencephalograms can be obtained without too much artefact in the record and without narcotizing the animal. In addition, curare intravenously is often employed to produce partial paralysis. This has no effect upon the electroencephalographic pattern. Special needle clip electrodes have also been constructed with the assistance of Mr. Clodius, simplifying tremendously the application of electrodes to the head of the monkey. A summary of electroencephalographic findings in monkeys in whom focal epilepsy was experimentally produced was presented by Drs. Bernard Pacella, Nicholas Kopeloff, S. Eugene Barrera, and Lenora M. Kopeloff, before the annual meeting of the American Neurological Association in May, 1944. A definite persisting zone of focus of abnormality, which seems to indicate a cortical area of physiological hyperexcitability, has been found in these animals for as long as one to two years subsequent to operation. These observations may be of fundamental importance in the study of epilepsy.

GLUTAMIC ACID IN MIGRAINE

Drs. Heinrich B. Waelsch, and Pacella studied the therapeutic effects of glutamic acid administration to a group of cases suffering from migraine. Electroencephalograms were taken of these patients before treatment and, in some of the cases, were abnormal. In 10 cases studied, no significant therapeutic benefit was noted with the use of glutamic acid in relatively high dosages. The ability of glutamic acid to diminish appreciably the restlessness and undesirable behavior of certain epileptics has suggested its use in the chronically aggressive behavior disorders of children. Only a small number of children thus far have been treated, and results are inconclusive. However, no appreciable response has been observed in these children.

SALT DEPRIVATION IN INSOMNIA

Dr. Michael Miller of the United States Public Health Service, in collaboration with Drs. L. H. MacKinnon and Pacella studied

the effects of salt deprivation in psychoneurotic patients suffering from insomnia. Special salt free diets were prepared for the patients under investigation, and sleep charts were kept on them. In addition, electroencephalographic studies and studies of the blood sugar, blood chlorides and urinary chlorides were made before, during and subsequent to the period of low salt intake. In approximately six patients thus studied, no important or significant therapeutic benefits were observed from the salt free diet or low salt intake, although it appears that partial relief of insomnia temporarily occurs in some of these patients.

DEPARTMENT OF PSYCHOLOGY

The research activities of the department of psychology have been interrupted and somewhat modified by changes in personnel and by additional teaching loads. The work which was reported during previous years on the subject of subliminal perception was continued on a much smaller scale. Miss Marjorie MacMullen investigated the accuracy of correct guessing of visually presented forms which were at such a low illumination that nothing could be seen. She found that there was a tendency for the guessing to be correct the nearer the true visual threshold was approached. Further work in this field is being held up until a soundproof and light-proof chamber can be constructed, at which time several major projects concerning the possible relationship between this phenomenon and hallucination will be undertaken.

For some time past, various investigators in the Institute's department of psychology have made studies of possible methods of measuring the rate and degree of mental deterioration or dementia. Last year, Mrs. Sylvia Ackelsberg applied vocabulary tests to patients suffering from senile dementia. She found that there was a reliable, consistent and progressive reduction in the ability to use or define synonyms and antonyms, which reduction was greater than the loss of the simple ability to define words. Vocabulary functioning, as a whole, does not remain constant in the senile dement, but certain of the vocabulary functions are of more value as indicators of deterioration than are others. This finding will be used in future studies of deterioration.

The work on temporary memory loss following electric convulsive therapy has been resumed with emphasis placed on the function of emotional reenforcement as a possible mechanism which may either facilitate or inhibit these memory losses.

GENETIC RESEARCH DIVISION

The organization of the genetic research division was stabilized by the appointment of Dr. Franz J. Kallmann as senior research psychiatrist (genetics). It seems certain that the promotion of long-term research dealing with the genetic and eugenic problems of mental disease will prove to be a step in the right direction. Psychiatry will be confronted with many vital tasks of readjustment in the postwar reconstruction period, but much basic research will be necessary before psychiatrists can take a full share in such a program of social and eugenic rehabilitation.

The main part of Dr. Kallmann's research activities during the past year was devoted to the task of keeping a total of what is now over 2,000 pairs of psychotic, mentally defective, senile and tuberculous twin patients under the closest possible observation. An unselected series of about 700 families having schizophrenic twins is at present being prepared for final analysis, while the findings obtained in a study of familial eunuchoidism were published during the year.

The cooperative research project of Drs. Kallmann, W. A. Horwitz, and Drs. Nicholas and Lenora M. Kopeloff, using different combinations of "shock" and fever therapy in a study of the nature and extent of artificially stimulated constitutional defense mechanisms, was carried on in selected schizophrenic patients after the safety of this therapeutic procedure had been definitely established. The most satisfactory combination method in schizophrenics was found to be insulin "shock," followed or preceded by several hours of fever cabinet treatment. The therapeutic results obtained with this method continued to be promising.

DEPARTMENT OF BACTERIOLOGY

EXPERIMENTAL CONVULSIONS IN ANIMALS

The major activity of the department of bacteriology has been focused upon the experimental production of convulsive seizures

in monkeys and other animals, in an attempt to elucidate the nature of the convulsive state and its treatment in man. Success has been attained in inducing at will a chronic state of "epilepsy" in the monkey which has persisted for more than three years to date. This has been accomplished by a single application of effective substances, particularly those containing aluminum. Recently, evidence has been obtained indicating that, following traumatic injury to the brain, recurrent epileptic seizures have been induced in monkeys by the parenteral injection of aluminum hydroxide in suitable dosage.

Various stimuli have been used with the cooperation of Dr. Carney Landis for eliciting seizures in prepared monkeys. The most effective procedure still remains prodding with a stick, but seizures have also been precipitated by revolver shots. When the blood sugar has been lowered by the administration of insulin, Jacksonian seizures have been followed by generalized convulsions.

Biochemical studies designed to throw light on possible metabolic changes of involved cortical tissue have been carried out, but no definite conclusions have yet been reached. Since the application of killed tubercle bacilli to the motor cortex occasionally resulted in recurrent seizures, oil extracts of the tubercle bacilli purified by Dr. Choucroun's special methods are being tested. Of the various drugs tested for therapeutic value, including luminal, dilantin, doryl, and glutamic acid, only luminal proved to be consistently effective in "epileptic" monkeys.

DEPARTMENT OF NEUROPATHOLOGY

AVITAMINOSIS

Studies in the department of neuropathology on experimental avitaminosis have been completed on the effects of Vitamin K deficiency diets, and a paper is being prepared dealing with the pathologic changes in various organs, joints and bone structures. A previous report on cerebral changes following Vitamin K deficiency has already been published. This work constitutes the first complete survey of histopathologic investigation in the course of Vitamin K deficiency. Its importance stems from the correlation of Vitamin K deficiency with cases of spontaneous hemorrhages

at birth. Material is being prepared also for histologic investigation of the central nervous system in cases of Vitamin B₆ and Vitamin E deficiencies.

AMINO ACID DEFICIENCY EXPERIMENTS

Experimental investigations on amino acid deficiencies have continued with the object in mind of establishing possible involvement of the central and peripheral nervous system and endocrine glands in diets deficient in some of the so-called essential amino acids. Experiments have been carried on in three groups of animals—very young, medium sized, and adult. Attempts have also been made repeatedly to reproduce in the same animals the syndrome of tryptophane deficiency. On gross examination, the outstanding features of this deficiency consist of arrest in growth, loss of weight, general emaciation, loss of fur, spectacle eyes and cataract. All these symptoms disappear when tryptophane is added to the diet and reappear when tryptophane is again removed from the diet.

PATHOLOGY OF CEREBRAL ALLERGY

Studies on the pathology of cerebral allergy have been active with the object of comparing the pathology of demyelinating diseases with that of experimental cerebral anaphylaxis. A case of scarlatinal encephalitis has been described; and, for the first time, its pathology has been related to cerebral allergy. A study of the pathology in various demyelinating diseases has also been completed and the conclusion reached for the first time that this pathology may be viewed in light of cerebral allergy. A detailed paper is being published in the December, 1944, issue of "Archives of Neurology and Psychiatry."

Through a grant from the Committee on Research in Tropical Diseases, studies are being made on the histopathology of cerebral changes in pernicious malaria.

DEPARTMENT OF INTERNAL MEDICINE

In the department of internal medicine, metabolic, special endocrine, and pharmacological researches have been active throughout the year. Work has been continued regarding factors affecting the level of glutamine in the blood. It was believed that these

studies would disclose acute effects on enzyme systems involved in nitrogenous metabolism which could not be detected by prolonged balance studies of nitrogen excretion. It was found in some experimental animals that the oral administration of what was believed to be an innocuous essential amino acid produced a marked depression of glutamine in the blood. Although the animal did not appear ill at the time, it died several hours later. It is possible, therefore, that studies of the glutamine level in the blood in certain pathological states may be of aid in prognosis and also in investigating certain therapeutic procedures.

Metabolic and therapeutic studies in neuromuscular disease have been continued. Because of the finding of a low 17-ketosteroid excretion in some of the patients the effect of the administration of male hormones is being investigated. This work, which is still in progress, has been aided in part by a grant from the Research Committee of the American Medical Association.

STUDIES AT LETCHWORTH VILLAGE

Through the permission of Director Harry Storrs, Dr. M. M. Harris, in cooperation with Dr. Theodora M. Abel, and Luella P. Gardner, has been carrying out therapeutic and psychological studies at Letchworth Village in a group of mentally defective patients presenting certain behavior disorders. Encouraging results have been obtained in some of the patients. These studies are still in progress.

Work has been continued regarding methods for the quantitative determination of 17-ketosteroid in the urine and iodine in the blood. It is hoped that these methods will make it possible to study acute disturbances in the physiology of the thyroid and adrenal cortex. Experiments on rabbits on the production of a thyroid deficiency state by the administration of thiouracil and of a diabetic state by the administration of alloxan are under way. It is planned to use such animals for studies regarding problems related to the action of thyroid and insulin respectively.

Dr. Harris has obtained a substance from human urine which in very minute doses apparently produces acute lasting paralysis in about 30 to 40 per cent of rabbits tested. Histopathological studies of these animals are being made by the department of neuropathology.

CURARE ALKALOID STUDIES COMPLETED

Studies regarding the effect of certain curare alkaloids upon the action of "true" and pseudocholinesterase activity of blood were completed. The findings disclosed interesting differences in the action of the varied alkaloids upon the two different cholinesterases. The results have been published in the *Proc. Soc. Exper. Biol. & Med.*, 56:223, 1944. The findings indicate the desirability of investigating the therapeutic possibilities of some of these compounds in certain neurological conditions. *In vitro* studies of the effect of these alkaloids on the cholinesterase activity of nervous tissue are being planned.

DEPARTMENT OF BIOCHEMISTRY

STUDY OF BLOOD CHOLESTEROL DATA

The department of biochemistry has been occupied with some of its long-term researches. In 1938, a study of the cholesterol concentration of the blood serum in patients of the Institute was started with the primary object of establishing with an accurate method whether deviations from normal in the total cholesterol concentration, or the ratio of combined to free cholesterol, occur in the major psychoses. Data have now been collected from nearly 2,000 patients; and several months ago the work of statistical analysis and study of the results in conjunction with case records was started. There is particular interest in the data from about 200 patients in whom repeated determinations over periods of several months were carried out. Careful study of these results should reveal if there is any relationship, such as has been claimed in the literature, between the type and severity of the psychosis and the serum cholesterol concentration. No such relationship has been evident in the thirty-odd patients whose records have been studied thus far.

The findings obtained in the investigation with Dr. Zucker of the department of pathology, College of Physicians and Surgeons, were the subject of two papers read before the American Chemical Society in September ("Relative Growth: The Distribution of Nitrogen, Fat, and Water During the Life Cycle;" "The Systematic Changes in Various Lipid Fractions During Growth.") One of

the points stressed was the marked difference, shown graphically by plots on log-log grids between the rate of accretion of lipids in the brain during growth and that of the body as a whole.

The search for a micro-method for choline determination was continued throughout the year. The goal has appeared to be in sight on several occasions, but so far it has not been attained. A recent finding promises that the large investment of time and effort which has been placed in this problem will begin to pay dividends in the near future.

THYROID METABOLISM INQUIRY

The results of the investigation of thyroid metabolism in monkeys, with Dr. Engle and Dr. Jailer of the department of anatomy, College of Physicians and Surgeons, were published in two papers in "Endocrinology." The collaboration with Dr. Engle was continued with a study of the effect of the thyroid-inhibiting drug, thiouracil, on the cholesterol metabolism of monkeys.

The study of the higher fatty aldehydes was continued by Dr. Waelsch and Dr. Ehrlich. Deuterium was used for the first time as an indicator in experiments on the metabolism of these substances. A routine method for the isolation of these lipids, worked out during the year, will make possible a study of their metabolic fates.

In continuation of their investigation of biological methylations, Dr. Waelsch and Dr. Borek devised methods for studying the methylation of certain poisons in the animal body with the object of applying the procedures to the investigation of drugs which affect the nervous system.

Dr. Waelsch continued the study of the rôle of glutamic acid as a therapeutic agent in epileptic patients. A prerequisite for the investigation of glutamic acid metabolism is a quantitative micro-method for its routine determinations in blood, urine, and tissue extracts. During the year considerable progress was made in the development of such a procedure.

"LONG TERM" STUDIES AND COOPERATIVE EFFORTS

Many of the problems which have been mentioned require a "long term" study for which even methods and techniques are not

as yet perfected and they thus have to be developed by downright drudgery. The growth of a valuable piece of research work takes place slowly. The worker with imagination, foresight and knowledge must develop the main plan and at the same time add the procedures and observations in turn and in order with scientific accuracy until some understandable result is obtained. This result often has to be gained by cooperative effort between departments, intramural and extramural.

The advantages of cooperative research were well summarized by Aristotle in the statement: "The search for truth is both difficult and easy for it is evident that in its pursuit no one can either be completely successful or go wholly astray; if, however, each one makes a small contribution to natural science the sum total of all the knowledge just gathered together will be something considerable."

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CHILDHOOD SCHIZOPHRENIA AND CHILDHOOD HYSTERIA

BY ERNEST HARMS

I. THE PRESENT STATUS OF CHILD PSYCHIATRY

Why in the history of medicine one disease seems to hold the spotlight of attention for a period, more than others, stepping forward like a prima donna on this tragic stage, is not always easy to explain. There was the period famous for colitis, and now there is one of allergies. This is true not only in the general history of human disease, but in the history of illness in any special field. We find it in psychiatry and even in its recently first developed subdivision: child psychiatry.

In the period between 1890 and 1915 the major interest of those especially active in the treatment of mental illness in juveniles was focused on juvenile hysteria.¹ About 1915, this interest in child hysteria died out as suddenly as it arose, and today this disease is rarely seen in the lists of ills diagnosed. From about 1925 on, another disorder started to become the focal point of interest in the field of abnormal child psychology, the psychosis of schizophrenia.

Many serious workers in the field are, however, convinced that some of the cases diagnosed as schizophrenia today belong to quite a different category of disease. The writer's purpose here is not, however, merely to suggest that the fad of any period may lead to an exaggeration of the incidence of any one disease, but more important than this, to point out that a comparison of the material of the two particular periods in which hysteria and schizophrenia were respectively the most common major mental diseases, affords many cases in which the diagnoses show a great similarity between the disease factors characterized in one period under the one, and in the other period under the other nomenclature. The confusion found in the somatic symptomatology would seem to indicate that an important task for the student of abnormal child psychology would be to draw a clear distinction between these two forms of mental disorder, which, objectively seen, are doubtless among the most frequent mental diseases of childhood.

There may be raised the objection that the label with which a case is tagged is only a problem of doctor's files. There is involved,

however, not only a name, but with the name, a whole method and technique of cure. Thus the diagnosis of a case becomes fundamental in the task of psychiatry, the helping of the diseased individual.

There are two other points which need emphasis before the discussion starts. One of the most important results of recent research in juvenile mental illness is our recognition of the fact that these illnesses have a quite different character from adult forms designated by the same names. They have only a partial similarity, or, as Bender² has put it, "the juvenile form represents a definite syndrome which can only be understood by the same line of thinking which leads to the concept of adult schizophrenia." The present writer will also apply this method of approach.

The second point is expressed in the order of this discussion. As the problems of juvenile hysteria are rarely discussed today, the writer will start the study from the broad base which the problems of juvenile schizophrenia have in the present discussion of abnormal child psychology. This does not imply any evaluation of child hysteria as a less important disease than schizophrenia. It is in fact the intention in this paper to show how much overemphasis is given to child schizophrenia as compared to child hysteria, and the underemphasis with which child hysteria has been regarded. The very frequency and seriousness of hysteria as a mental illness in children seems to the writer to justify disregarding the opinion expressed by Kanner¹ (when he designates child hysteria as a minor and schizophrenia as a major psychosis in the forms in which they appear in children).

II. SUGGESTED VIEWPOINTS

For the framing, the characterization, and the discrimination of juvenile schizophrenia, Erich Benjamin,³ Leo Kanner,¹ Charles Bradley,⁴ and J. Louise Despert⁵ have done most. Each of the first three authors gives a series of symptoms of juvenile schizophrenia expressive of similar abnormalities in each of the major psychic activities. The series of Benjamin reads as follows: *Beziehungs-, Affect-, Sprach-, Willens-, Assoziations Störungen, Halluzinationen, Wahn-Stimmungen und Wahn-Ideen*. (Disturbances of relationship, affect, language, will, and association; hallucinations,

paranoid emotions and ideas.) Kanner gives the following series: Withdrawal from the environmental realities, general emotional blunting, discrepancy between mood and thought, delusions, ideas of reference, feelings of being influenced, hallucinations, "queer" performances, and incoherent and irrelevant verbal expressions. Bradley gives the following list of individual traits: diminished interest in the environment, emotional disturbances, alteration of motor behavior, speech disturbances, disturbances of thinking, disturbances of overt behavior, hallucinations and delusions, and sleep disorders. Despert,⁵ realizing the differential picture in childhood schizophrenia, has used the method of individualizing the characterization of individual typical pictures, which, however, run in general in the line that is given by the other authors mentioned. Thus, one sees that schizophrenia in children is a general or major illness affecting practically the totality of all the psychic functions, a fact also emphasized particularly by Kanner.¹ In this general disorder involving all or most of the individual functions, one observes occasionally, however, that one or the other of these disturbed individuals is able to perform normally again for a short period, a fact emphasized by some observers as a difference between juvenile and adult schizophrenia. This seems to indicate an underlying general function, an actual bearer of the specific schizophrenic illness which produces the abnormalities in the various directions. Can there be such a general psychic function?

In the teachings on abnormal psychology by the academic school from Robert Sommer, Morton Prince and Eugene Bleuler⁷ to Arthur Kronfeld,⁸ and in those by the analytical and individual psychology school of Freud, Jung, and Adler, such a formation-function of the entire psychic activity—designated as the ego, the I, or the self has been again and again emphasized. And Kronfeld, in his huge work on schizophrenia,⁹ has laid the basis for the present writer's attempt in a paper published some time ago (*Das Normale Genie—Zentralblatt für Psychotherapie*, Vol. 5, No. 6, 343-361) to show that we come easiest to an understanding of adult—and so too of juvenile—schizophrenia if we see it as a special kind of malfunction of the ego. All that has been said from the various viewpoints in regard to the dynamic factor in the abnormalities produced by schizophrenics points toward the theory that we deal here

with a weakening and a continuous dissolving and finally a bursting of the ego structure and the ego function. After the first schism of the inner structure has occurred, its entire activity starts to break up, and we have the characteristic picture of what we recognize as adult schizophrenia.

Let us now turn to hysteria. When, in 1913, Emil Kraepelin¹⁰ wrote his famous treatise on hysteria, the period of interest in it as a specific disease of childhood had nearly come to an end. Kraepelin tried to define hysteria as an emotional disease, of which he found about four major forms. Most interesting of all his investigations, was the observation that hysteria proved to be mainly a disease of the second decade of life. Between 25 per cent and 40 per cent of all his hysteric patients were from 15 to 25 years of age. However, if one surveys the great number of studies,¹¹ and observations made by German, French and American students in regard to the actual abnormal attitudes of hysteric adults and children, one finds factors enumerated from nearly every field of psychic activity, just as those were found in the enumerations of schizophrenic symptoms as they were cited in the foregoing. We learn of social deviations, of thought, emotion and will disturbances, we find memory and speech difficulties also. And since the functions attacked by hysteria usually return at intervals to normal activity, we are here, still more than in schizophrenia, entitled to assume the underlying ground-function of the ego which in specific malfunctioning causes the actual activation of the illness. Also, hysteria is basically a disease of the ego structure and the ego function of the individual psyche. However, there is a fundamental difference in the dynamic direction between the ego malfunction in schizophrenia and that in hysteria. The writer described the character of this dynamic activity in schizophrenia as a dissolving and bursting. In hysteria, this is not the case. Nearly every writer on hysteria emphasizes contracting, laming, or paralysis of this or that function in which hysteria finds its expression. In connection with this disease such a laming of the ego always occurs, showing its effect in any individual function, either of the body, as a conversion symptom, or as a purely psychic reaction. Hysteria is always such a contraction or laming which may be either total or partial. It appears in most cases that the ego functions as such re-

main intact, but are interrupted in their normal execution in spasms of short or long duration. In rare cases only this interruption appears in a sort of stupor for a longer time, or in partial dysfunction as in hysteric blindness or stuttering, or even mutism. But after this cramping and laming is removed, the ego function works again normally for the most part. Herein lies the chief difference between the two diseases: In more severe cases of schizophrenia, the ego function seems to be severely hurt and even destroyed and does not regain its normal activity without an extended therapeutic procedure, if it can be restored at all.

The writer has, up to this point, described the theoretical basis upon which it seems to be possible to give a clear insight into the structural and dynamic differences of schizophrenia and hysteria and of their juvenile forms. It will now be the task to show how both types of sickness appear in their pathogenic aspects, because—in this way—it will be possible to apply the conceptions presented here to show their importance for treatment of the juvenile forms of these diseases.

III. PATHOGENESIS

Erich Benjamin, in his textbook,³ has expressed the viewpoint: "If one wishes to consider hysteria as a disease of its own, one ought to extend the content of its meaning infinitely, since there already exists in nearly all normal babies such a mass of different symptoms which must be considered hysterical." Because of this widely spread appearance of hysterical symptoms even outside the sphere of any real pattern of sickness, Benjamin felt entitled—as he puts it—"to retire from the use of the word hysteria as a specific disease." Benjamin, however, has been one of the first to nominate childhood schizophrenia as a major juvenile mental illness. And he has, indeed, defined a good many symptoms in such a way that they fit into the rather unclear picture of the present overestimation given to childhood schizophrenia.

The present writer has made it the task of this paper to clarify the difference between schizophrenia and hysteria especially in their juvenile forms. We know that in its prepathological state schizophrenia has been solidly built upon the schizoid type presented in his typology by Ernest Kretschmer.¹² There is no doubt

that this theory is to a great extent responsible for the rather too broad extension of the concept of schizophrenia. Such statements as that quoted from Benjamin, together with the popular, though often incorrectly applied, concept of hysteria, seem to suggest an addition to Kretschmer's typology. Since the days when this theory became known it has occurred to the present writer to wonder whether we have not a right to postulate a hysteroid type similar to the schizoid type and founded equally upon specific physical traits. However important the implications of a hysterical type may be, this paper must limit itself to the mere pointing toward its existence.

On the basis of a theory of hysteria and schizophrenia as expressions of abnormal functioning of the ego, what are the characteristic hysteroid and schizoid—that is to say prepathological—behavior patterns in children? First let us give a characteristic example of schizoid behavior: "A child sits at the door or window waiting for hours for his father or for a playmate, but the minute the longed for individual comes into sight the child runs excited and even frightened into the back room or a closet and can hardly be persuaded to come out again. Actually such behavior is not yet at a point to be considered pathological, but it is abnormal. It is explained by the fact that the child has overstrained his ego in expectation and is afterward unable to make the immediate social contact. What is happening is a dissociation in the functioning of the ego which characterizes schizoidism in children. Next, let us view a typical hysteroid pattern recognizable by all who have to do with children. The child who does not get what he wants often responds with uncontrollable crying spells, fits of kicking, or a stiffening of the arms, or of the entire body. This cannot be called a pathological behavior pattern, but it is an abnormal one. Its explanation is that it is prehysterical, hysteroid, or as Benjamin has called it, "hysteria-form" behavior. It is caused by the contracting, cramping and laming of the ego; and while this process may release the individual in uncontrolled manic-like actions, it appears to be an actual short-term paralysis of some sort. Thus, although they are expressions of the same ground-function, the two types of abnormality are, in basic character and fundamental dynamics, profoundly different.

There is only a narrow, though a deep abyss between schizoid and hysteroid on the one side, and real schizophrenia and hysteria on the other. And this is especially true in the juvenile forms of both diseases. The attempts of Tramer,¹³ Bradley,¹⁴ and others to trace—through a historical, diary-like survey of a child's development into a schizophrenic—the earliest symptoms of the disease, have up to now proved unsuccessful. And from the theoretical viewpoint presented here, it is easy to understand why this is so. Each individual study of the early stages of schizophrenia will disclose different pathological symptoms which can be reduced by a single somatic common denominator if considered as expressions of an ego-weak and backward individual. Keeping the explanation in mind which sees the fundamental cause of schizophrenia in the dissolving of the ego, one sees in the individual different symptoms with various expressions which are determined by the specific circumstances and which do not always seem to be related to any specific function. One must further take into consideration the fact that the ego function does not mature in a normal baby before the third year of life, when he stops calling himself by his own first name and begins calling himself "I." It seems to the writer, at any rate, rather difficult to find specific indications of juvenile schizophrenia before this time. However, a retarding of the general functions of speech—so closely tied up with ego development—and the appearance of destructiveness in play activities may be considered an indication of a start of mental illness. They should however, not be taken as specific symptoms of an incipient schizophrenia, but as part of a much broader framework inclusive of many other forms of illness. However, if after the age of three and even four, the "I" reaction does not appear and echolalia in excess becomes apparent, one must take into consideration the concrete disposition for later schizophrenia. However, such symptoms seldom appear alone, but rather in combination with other retardations in adaptation to the most elementary living habits and with slackening of motor coordination. At times, a child with such symptoms will show a quite normal, or even a rapid, intellectual development, which, however, must not be taken as a specific measure of the status of the child. His ego, which in its natural intellectual maturation at about the age of four is most strongly occu-

pied with the development of the intellectual functions, may in its weak and even pathogenic state tend to express itself in these same intellectual functions. But one will find other symptoms showing serious lack of coordination in such children. Such pathological intellectuality, moreover, is evidenced by persistent questioning in regard to personal security, personal health, and relationships to the environment. Such children express, even in their rather over-active intellectuality, an illness easily observable by the trained eye.

Because of this unhealthy, prodigy-like intellectual glow, a kind of hot-house overgrowth is frequently incorrectly estimated; and the earliest schizophrenic expressions are in many cases overlooked until about the seventh or eighth year of life, when regression sets in. The child of this age is no longer the tireless intellectual question mark, but a simmering bundle of personality impulses and of emotions. The ego now takes on broader functions. It not only motorizes the rational development and keeps the rest of the quick-growing forces going, but it now starts on its task of coordinating the various forces of the individual psyche. At this point one becomes suddenly aware of the dissociated individual of the many case stories, for instance of those which Despert,⁸ Rapaport,¹⁵ Potter¹⁶ and others have reported. There is actually a dissolved, or more specifically stated, a badly developed ego, which appears to be the basis of the malcoordination, of the retardation of the entire psyche or of major parts of its expressions.

There is a fundamental difference between this preadolescent schizophrenia and that which one rather frequently comes across as starting in postadolescent youth. In the present writer's conception of individual development, it is not until the period of physical maturity that the ego becomes sufficiently rigid to stand as an individual structure with a specific control of will and affect. Schizophrenia which appears or comes to an outbreak in this period has actually to burst this finally installed and matured ego. If one considers schizophrenia a bursting of the ego, it cannot be found before this period. Before adolescence, schizophrenia is more or less a dissolving of the unfinished ego structure or its crippling in development.

Schizophrenia which breaks out during the second decade of life, already follows the pattern of the disease found in adults. It seems

as if physical maturity is the actual dividing line between what one might call a juvenile and an adult form of schizophrenia. Of course, forms of infantilism occur frequently among the cases of postadolescent schizophrenia, especially in cases where the disease has been of a lingering character, and has been carried over from an earlier period, without coming to an actual outbreak or to clear outward appearance until after adolescence is reached. But close as is the resemblance between preadolescent and adult schizophrenia, they differ profoundly, one from the other, as regards therapeutic considerations. There will be brief discussion of this later.

One may now turn once again to hysteria to study its pathogenetic development. Keeping in mind the writer's early mention of Benjamin's concept, he would like at this point to add another, taken from what appears to be probably the best study of the genetic aspects of juvenile hysteria, that of the Frenchman, George Madin.^{11-m} Madin has based his explanation of juvenile hysteria on Janet's general concept of hysteria, a concept which proves to show a curious overlapping with the most frequently mentioned concepts of schizophrenia. Janet speaks of hysteria as a "*dédoublément du conscient et du subconscient*." Based upon this, Madin has tried to explain hysteria as a kind of dissociation phenomenon of the consciousness. There is the striking similarity between the definitions of the two major diseases in the two periods when first hysteria and then schizophrenia held the center of the psychiatric stage. This was due perhaps as much to the fact of real resemblances in the actual individual disease symptoms, as to some confusion or lack of final clarification in terms as well as in theory. Considered, however, from a theoretical viewpoint, such as that presented here, the resemblance no longer exists. One can, of course, describe hysteria as a dissociation of the healthy part of the psyche from the part which is made the object of the disease. But this dissociation is not the essential element in the somatic picture presented by the usual case of hysteria. If both illnesses—schizophrenia and hysteria—are considered to be different forms of pathogenic functioning of the ego, it is the dissociative element which is most characteristic of schizophrenia, and it is the factor of contraction, cramp, and laming which is the essential characteristic of hysteria. In

this aspect, one comes to a clear separation of the syndromes of the two diseases.

This fundamental difference is found only too clearly expressed if one steps from hysteroid elements to the earliest forms of hysteria in childhood. While weakness or absence of the ego function were noted as characteristics of the earliest symptoms of real schizophrenia, one finds the opposite in hysteria. The ego functions, in hysteria, appear to be overdeveloped, so that they are disturbingly strong, are not fitted to be tamed and are unable to coordinate. They flow too strongly as a stream in the consciousness and come into conflict with this or that part of the experience of reality, leading to some kind of "mental constipation" which finds expression in contractions, cramps, and outbursts. We all know the violent infantile scenes in which a not realizable demand expresses itself in an agony of desire or of refusal.

During the second period of juvenile development the problem of hysteria becomes more complicated because of a phenomenon to which Benjamin¹⁷ has devoted considerable study. He has formulated for this phenomenon the term "*Trotzperiode*," period of resistance, to apply to children of from four or five to eight or nine years. The need for inner independence develops a natural wave of strong resistance against any unwelcome influence and frustration from outside. This, together with an overdeveloped ego, may force parts of the personal dynamics either to outbursts or to contractions and lamings. This "*Trotzperiode*" hysteria is the most characteristic form of juvenile hysteria. Kraepelin,¹⁰ as well as Bleuler,⁷ has emphasized that, in all hysteria, strong emotional elements are involved. This is especially true in this second period of juvenile development and its hysteria pattern. Educational psychologists have designated this second period of juvenile development as that of the maturing of the emotional forces and those of the personality of the child. It is, therefore, no wonder that negative emotions rise easily when resistance becomes incited and that hysteria breaks out with great violence when cause and disposition give the conditioning. Reviewing a number of hysterical patients of this age, one is confronted with a type of sensitive, even hypersensitive, youngster who finds it difficult to manage the ego in regard to strongly developing emotions. If such children have weak

ego functions, they become schizophrenics; with unbroken ego functions they become hysterics.

Most preadolescent hysteria is evidenced in scenes of no great violence, though organic attacks of stuttering, mutism, or blindness may last over considerable periods. Attacks are most violent in juveniles during the period of adolescence and later. This is easily explained by the fact that only in adolescence do the functions of will and affect-control become fully developed in connection with sex maturation. Ego malfunctioning of the hysteric type—which makes these young, just matured functions of will and affect its medium—has here, of course, an instrument which hardly could be better suited for violent outbursts. And, in addition: The entire range of sex antithesis which enters the action field of postadolescence hysteria at this point contributes a good deal of motivation. However, it is not true that this is the fundamental element in these attacks, as is maintained by some. The present writer declines to overestimate the factors of sex relationships and wishes to give the strongest emphasis to importance of the ego functioning as the background of sex hysteria as well as of any other form of this disease.

Postadolescent hysteria, as it has been outlined here, is, however, also distinguishable from all adult forms of attack through one element which the writer wishes to emphasize. These juvenile attacks have a more general character, they are more impulsive attacks, often affecting the entire personality. This is because the ego in 'teen-age persons is more elastic and vital than in adults. The hysteric attacks of older persons have a certain conventional form which makes them even predictable. Each attack of 'teen-age hysteria is a case in itself, usually subconsciously conditioned, often even unrealized by the person in whom it occurs. Older hysterics generally are rather aware of their conditions, are even so conscious of them that they can use them, aside from such cases as involve amnesia.

IV. RELATIONSHIP BETWEEN CHILDHOOD SCHIZOPHRENIA AND CHILDHOOD HYSTERIA

This discussion may begin with a case history as an illustration. G. was a 19-year-old boy, when the writer first learned of him.

Both parents, highly neurotic and completely unfit to raise children, had tormented themselves and their two children (of which one was two years younger than the patient) until mother and both young persons were ripe for the psychiatrist. Of poor origin, the family had attained considerable wealth, and the patient was kept in a separate household. His history revealed him as a neurasthenic child from his earliest days. The usual fear elements had been injected by a maid who shut him up for hours in a closet and frightened him in other ways. Washing inconveniences in the poor early home proved to be the basis for a later aquaphobia. The intelligence of the boy showed an astonishing height before and during the first four years of school. He had an I. Q. of between 130 and 140. However, he seemed to have been even at that age hypochondriacal, difficult to handle, and extremely selfish.

At about the age of 13—presumably caused by an unrevealed sex attack during a stay in a summer camp—a pathological development set in. Symptoms were withdrawal, permanent refusal to undertake his usual activities, elements of amnesia, the dropping of the I. Q. in two years to about 80, extreme masturbation, sleeplessness, refusal to speak, to eat and to make simple social contacts. There was nothing in the picture of the soma of this boy at the age of 15 that would not lend itself to diagnosis as schizophrenia. The boy was, indeed, ferried about between the offices of psychiatrists and private institutions with the label varying from major behavior disorder with schizophrenic traits to a definite filing as a full-fledged case of schizophrenia. During a short stay in a public institution, he had the opportunity of seeing all types of psychotics, especially schizophrenics. He adopted not only the behavior pattern of one type, but practically of all. So when the present writer came to observe him, he exhibited catatonic features. How astonished the therapist was to find he had become a hebephrenic when he saw him the second time.

At most times, one would quickly have made a diagnosis. However, this change of disease pattern was somewhat suspicious. Added to this, G. was amazingly observant, missing nothing that happened, and later putting his observations to use to better his situation. In general he presented a stupor pattern doing most things only under pressure or the threat of discomfort. Letters,

which he wrote only with annoyance, indicated no characteristic schizophrenic breakup, but only retardation and a limited thought range. But this, too, was only an expression of his desire not to be bothered. The apparently schizophrenic features proved to have been assumed in a hysterical defense. He used the schizophrenia pattern as an easy mechanism for his hysteric crampings and lamings. The boy had developed a stuporous hysteria, withdrawing from a disagreeable environment, but he was not a schizophrenic.

This case is highly instructive in distinguishing between the two forms of illness. Somatic pictures of a specific illness made inductively from observed symptoms are not alone a proof or are not perfect proof of the presence of a disease, if the symptoms are not permanent in character. G. had observed and learned the attitudes most effective in obtaining what he wanted from those around him. So he imitated severe schizophrenic symptoms. This always worked up to a point until his caretakers got tired of this pattern and demanded that "he finish this game." He then took on another series of attitudes: a characteristic stupor form of hysteria.

In following the concept of a dissolved ego as the basis of schizophrenia and of an inadequate, strong ego as that of hysteria, one will not make such mistakes of misinterpretation as happened in this case of G. It is known, first of all, that hysteria cannot occur in a schizophrenic individual who lacks the resources out of which to furnish the power and dynamics for hysteric attacks. The contractions and lamings produced by certain individuals in hysteria attacks cannot be produced by schizophrenics. Instead of these, they produce catatonia. Catatonia, however, is not an expression of tension or overtension as hysteria always is, but is a sign of inability, through the nonfunctioning of the dissolved ego, to express normal attitudes.

On the other hand, one may find schizophrenic symptoms in cases of hysteria, as the writer did in the case reported. Schizophrenic symptoms may occur in severe hysteria cases in periods of exhaustion following a series of attacks. The weakening individual whose ego becomes exhausted may become schizophrenic. However, such cases usually cease to be hysteria before starting to develop into a real schizophrenia. During recent years, the writer has observed several cases of hysteria—all in preadolescent girls—which evi-

denced at times schizoid and at times schizophrenic traits. Further intensive study of the developmental patterns of juveniles falling from hysteria into schizophrenia seems to the writer to be necessary before any final conclusion can be reached as to the extent to which hysteric attacks or a developed hysteroid disposition predisposes a child to schizophrenia. About this, as about many other phases of the problems of juvenile schizophrenia and hysteria, we are still only at the beginnings of satisfactory knowledge.

V. THE THERAPEUTIC PROBLEM

Let us finally blueprint in brief the application to therapy of these concepts of schizophrenia and hysteria as based on ego functioning.

Particularly as regards schizophrenia, this concept suggests important changes in the therapeutical measures most commonly used today. Schizophrenia in this concept implies a need of reconstruction of the ego functioning and of strengthening the ego to such a degree that it may be active in coordinating and directing the other psychic functions of the individual. Shock treatment, of course, does not in any case, consider this aspect. Any therapeutical approach must be sure to take into consideration the question of which functions are still intact and which are in need of reconstruction, or, in the case of juveniles, which are capable of development.

As regards hysteria, changes in therapeutic measures are also suggested by the concept of a basic ego malfunctioning. Hysteria therapy has mostly consisted of loosening tension and of lessening the tendencies to attacks, a therapy actually affecting the ego function without being aimed at it. If hysteria therapy is consciously directed toward correcting the ego functioning, the therapist will avoid the danger of the destruction of valuable inner forces in the sick, and he will be better able to safeguard hysterics in a shortened and intensified cure. The main effect of this orientation, however, will be in the finding that hysteria has been in many cases the real illness, which, incorrectly diagnosed, has been wrongly treated. The writer believes that in unclear cases of children, especially between the ages of 10 and 20 no harm will result from an attempt at a hysteria cure. If another ailment is involved, the true character will become apparent under this treatment and it will be possible

to come to a clear diagnosis and to adopt an appropriate therapy. Any careful hysteria therapy, effecting tension release, will never do harm, even if applied in cases where other means later on prove to be eventually necessary. Much modern release therapy is aimed primarily at hysteroid or hysterical difficulties from an instinctive realization of the need, but without a clear insight into the real pathological background upon which the disease arose.

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THE EVOLUTION OF A SCHIZOPHRENIC PROCESS IN A YOUNG BOY

BY BEULAH BOSSELMAN, M. D.

The case of schizophrenia developing in an 11-year-old boy, Richard—and to be reported here—is of interest in illustrating the complicated interplay of constitutional, infantile and later environmental circumstances culminating in such a condition. The available record of this boy's behavior before, during and after his breakdown presents an unusually clear picture of the process.

Richard was first seen at the Institute for Juvenile Research, Chicago, in October, 1934, where the following history was obtained:

The boy's father had left home at the age of nine and had enlisted in the army when he was 17, remaining for seven years. He said that he had been ambitious to be a prize fighter. The mother was reared in an orphanage. She worked as a telegraph operator, continuing after marriage up to the time of her pregnancy with Richard. She expressed resentment about her pregnancy and said that, as her husband had married her for her money, he became more disagreeable after she quit work.

Richard was born after a seven and one-half months pregnancy. He weighed four pounds. He first walked when 19 or 20 months of age and began talking about the same time. He was breast fed for 13 months and was apparently not a feeding problem. At the age of five, he had whooping cough, measles, mumps and chicken-pox in close succession. During this same year he entered school. He sucked his thumb till he was six and one half and stuttered although not constantly, from the age of nine. His mother asserts the father did not allow the boy to play outside the home in his pre-school years.

Richard is described as obedient to his parents until after he entered school. He then became irritable and quarrelsome. The teachers reported that he behaved well in school, although he was shy and childish for his years. He told his mother the boys at school "picked on" him. He at first tried to join in their games, but when rebuffed avoided contacts with boys and played with the girls. He quarreled with the girls a great deal. His mother re-

ported that he caused her much trouble because he would hit the girls, causing their mothers to remonstrate with her.

Richard has a brother, three years younger, who was described as "a regular boy." The brothers quarreled. Richard seemed to become furiously angry in these quarrels whereas the brother would laugh and seem less disturbed.

For a year or two before Richard was brought to the Institute, his mother had observed that he was becoming increasingly tired, listless and irritable. The father first accepted the idea of seeking medical help when he became alarmed over the boy's effeminate ways. He took him to a physician in September, 1934, when the boy was 11 years old. The physician referred him to the Institute. The father told the interviewer, "My boy is not a bad boy but he acts like a girl. He speaks in a soft voice like a woman. He walks like a girl and will stand with his hand on his hip."

The physical examination revealed 2/10 vision in one eye, lumbar scoliosis, slight enlargement of the heart with a rough first sound at the apex, dental caries, tonsillar stumps. He received a Stanford-Binet psychometric test which indicated an I. Q. of 110. Richard was seen at this time by a staff psychiatrist who described him as an alert appearing boy with a very effeminate manner. He talked in a quiet voice, was cooperative but rather impersonal and detached. Some significant excerpts from this doctor's notes are as follows: "My father likes my brother better than he does me. He has already told me so. He says he likes Billy better because Billy acts like a boy and I act like a girl. It is all right for him to feel that way. That is his duty, because I was born a boy and must act that way. He tells me that when I grow up they will call me a freak and there will be crowds of people following me. They all know I am a sissy but I think I am as good as any other person. . . . I guess there are other children in Chicago who have to be laughed at by ignorant people as I am. I don't think I am the only one." About his mother, he said, "I think she likes me;" and about his father, "I don't like him as well as I would like to like him." He accused his brother of destroying his possessions and of calling him names, saying that of all children his brother is the worst. He said he would be able to "beat up" his brother but, "when my father is home, I just can't win. He seems to break my courage." Richard

expressed much interest in drawing pictures of women, but declared that his father disapproved of this and often spanked him for making such drawings. During the interview, the boy drew pictures of women after the "Gibson girl" style, rather formalistic and detailed. He asserted that his ambition was to be a teacher, and, when questioned about his daydreams, said they dealt with school in which he played the rôle of teacher.

At the time of this examination, it seemed evident that Richard had a realistic attitude toward his situation. The attitude of his parents at that time, as observed by the social worker, was an unsatisfactory one. The mother seemed tense and worried and expressed no insight into the boy's condition. Her report consisted largely of complaints about him and she remarked, "I don't feel like being good to him. He makes it so hard for me." The father seemed genuinely concerned about the boy but inclined to feel that he should be handled by firm discipline.

The Institute staff advised further interviews with parents and boy. The treatment was to be directed toward acceptance and encouragement of the child's positive qualities. It was recommended, for example, that he be enrolled at the Art Institute.

The parents did not contact the Institute again until in December. At that time, the mother came in to say that Richard was becoming worse. He was irritable, cried a great deal and often said, "I wish I was dead." She reported that she had enrolled both her boys in a course together at the Art Institute and expressed resentment of the necessity of taking them there. It was quite evident that both parents continued to criticize and punish the boy. The mother stated that her husband's family considered Richard to be queer and "a fool" and that they suggested that he resembled her family, whereas the other boy was like his father. The parents were continuing to quarrel in front of the children.

Since the cooperation of the parents was so doubtful, the Institute suggested that a social worker call at the home to obtain a more objective picture of the situation, after which further plans would be made. The worker did attempt to do this, but her visit was discouraged by the mother.

The next contact with the family was in April, 1935, when the father came in to report that he had taken Richard to another phy-

sician who had reported that the boy was perfectly normal except for his feminine ways. The father quoted the doctor as saying that the boy had a fifty-fifty chance of becoming homosexual and that the only treatment was to "knock it out of him." He suggested placement in a manual training school. The Institute suggested an alternative attempt to find a suitable school for Richard. The father said he would let the Institute know his decision. Nothing further was then heard until May, 1935, when Richard was again brought to the Institute by his parents.

The psychiatrist at this time was impressed by the marked change in the boy. He appeared to be in a dream state, preoccupied and only partially aware of his surroundings. His facial expressions and mannerisms were entirely out of keeping with the situation. At times, he would respond normally to conversation, but at other times his remarks were quite irrelevant. Quite spontaneously and without relation to any other part of the conversation, he burst out with, "I think bad things." When asked what he meant, he drew the curve of a woman's figure in which the buttocks were prominent, remarking, "I know it's wrong. I shouldn't think such things." In answer to a question about his school adjustment he stood before the examiner and said, "You know, there's a boy by the name of Kenneth at school whom everyone hates. I hate this boy too. He's not a nice boy. He irritates everyone and everyone hates him. Nobody likes him. Nobody plays with him and even his parents don't like him. I wish I would never have to see him again." Some time later Richard remarked about Kenneth: "That was me." He then went on to elaborate that no one liked him, all the boys "picked on" him, and he was very unhappy. Some further quotations from the boy's statements are as follows:

"I can't sleep unless I think of something bad. I want to see pp., pp. of everyone. Once I knocked a child out of a high chair and hurt him. His mother almost killed my mother. At the race tracks, horse did dirty things into a trough. The comics in The Times are dirty. My mother is a beautiful lady, a lovely lady. She's my mother. What will stop those people! They're talking about and hurting my mother." After this last outburst he pounded his head and said, "Because I'm that way, I think others are too. My mother

is a beautiful tall girl. Her actions are so feminine. They are killing mother. If mother knew it she'd kill herself. She'd go to the bathroom and take poison. There are too many people in the world and all bad. I take out too much time for relaxing. I feel so good when I relax. Do you know what the boys say to my brother? They say, 'Is your brother crazy?' They must think they are so much better. I take out too much time. Dear me!

"My father is a nice man. He used to be so terrible. He changed since I began wanting to see things, like pp. There are only two people in the world which are against people. That doesn't mean anything—only two people. I wish this stuff would be taken out of me. I'm almost a king over thousands of people. I don't want to be. I'm only a little boy—a little boy. Oh, change me! Change me! I'll ruin whole families unless something is done about it. I'll hurt somebody. It can be taken out of me. I want it to go."

The interviews with Richard at this time illustrate what might well be described as nascent schizophrenia. The boy vacillated between a realistic attitude which led him to describe his suffering, to realize his hostility and to cry out for help, and on the other hand an attitude of retreat into a world where he could be "king over thousands of people" and where his father is "a nice man" and his mother a "beautiful and lovely lady." His vacillation is well illustrated by his talk about Kenneth, whom everyone hates and "I hate too," a fantasy figure on whom he projects his own inadequacies yet whom in the next minute he identifies realistically by stating, "That was me." Also he expresses his insight when he says, "I take too much time for relaxing. It feels so good to relax." Richard's deep sense of rejection by his mother had led him to develop an intense homicidal hostility for her which he projected in fantasies of other people who talked about and wanted to kill her. The mother apparently had sensed that feeling though the boy did not directly verbalize it. Toward his father, the boy was ambivalent. His homoerotic behavior seemed to represent an identification with a mother ideal, who is "so feminine," in an attempt to win the love of the father. This feminine identification was the most consistent integrating component in the personality structure, but the boy had been violently discouraged about accepting it and was therefore in conflict about it. "I was born a boy and must act

that way." Aside from his homoeroticism, his social-sexual attitudes were confused. There were suggestions of early infantile interests in "pp" and "dirty things horses do;" sado-masochistic elements and vague adolescent attitudes suggested for example by his interest in women's buttocks. Because of his intimidation and consequent sense of guilt about his feelings for others, he dismissed all libidinal interests as "bad" and cried, "Take this out of me."

The Institute staff felt at this time that Richard was psychotic. Because of the mother's hostile and fearful attitude, a plan for foster home placement was discussed. Before this could be arranged, however, the boy became so seriously disturbed that commitment was decided on. He was committed and brought to the Illinois Psychiatric Institute in June, 1935. He remained in the Institute six months, during which time his condition showed no observable change. He was withdrawn, restless, paying no attention to his surroundings but answering questions monosyllabically. He made gestures described as effeminate. He did not dress himself and had to be spoon-fed. His interest was occasionally aroused by candy. On a few occasions, he attempted to hug or kiss other male patients. Aside from this, his behavior seemed entirely autistic. There was a tendency to alternate between periods of noisy excitability and a quiet, practically mute state. His verbalizations, in contrast to those previously recorded, now indicated a complete break with reality. His expressed fantasies were at times euphoric and at other times dominated by fear.

"I am living in supreme happiness. Oh my, she's a darling—so beautiful, so delightful. Oh, she's a princess. How lovely!" At another time he remarked, "I'm more beautiful than anybody in the whole world." Once with an apparent flash of insight, he said, "This is for mommy. She can cure me any time. Oh, mama! I wish I could fight that man. Free my mamma, the only one I ever loved." But later, he said, "I wish I had a mother; I need a mother so." The fearful fantasies were illustrated when he suddenly cried out, "The rats are after me. Oh, don't let them get me. I didn't do anything. Can't you see them coming? After this outburst, he suddenly became quiet and repeated his characteristic remarks, "How lovely they are!" A strongly masochistic femininity was frequently demonstrated. When an attendant slapped Richard on the

buttocks, the patient exclaimed, "I just love for you to do that; I'd like to kiss you on the lips when you do that." Once he took an attendant's hand, laid it on his own hip and said, "Haven't I got a nice shape? Don't you think I'm beautiful?" He stroked his abdomen and asked, "Am I going to have a child?" On several occasions he mentioned Bobby Franks, remarking, "I'm Bobby Franks. They threw Bobby in the sewer, and I'm that Bobby—aren't I? I want to be Bobby Franks."

The physical examinations made on the ward agreed with those reported by the Institute for Juvenile Research. The neurological examination was negative. A pneumoencephalogram showed no definite pathology, and all routine laboratory examinations were essentially negative.

During the patient's stay on the ward he was seen frequently by one of the male physicians who encouraged the boy to draw pictures and attempted to establish rapport with him. Richard, however, showed no interest in these visits and continued to talk and behave in the manner described.

At the end of six months, the staff suggested transfer to a state hospital. Richard's father, however, wanted to put the boy in a foster home, so he was paroled to him. With social service assistance, an apparently favorable foster home was found. Richard was brought in for parole visits, at which times no changes in his condition were observed. In June, 1936, he was transferred to Elgin State Hospital. A report from that hospital dated July 25, 1944, states: "The patient is deteriorated. He has the appearance and behavior of a small child, is uncooperative and shows the usual characteristics of a very deteriorated hebephrenic schizophrenia. Mentally, he is an empty shell from which no material can be obtained."

One has available in the record of this boy's breakdown a very good demonstration of the meaning of schizophrenia. One thinks of a schizophrenic psychosis as a condition resulting from realistically insoluble inter- and intrapersonal conflicts. It is often observed that previous to the breakdown, the patient has attempted to reconcile these conflicts by compromise, overcompensation or by the subordination of one drive to another. All of these methods allow the preservation of integration of the self in relation to the reali-

ties of the external world. Schizophrenia is the result of the breakdown of this integration. It is a complete failure in adaptation. The person's libidinal drives, which ordinarily serve in the establishment of rapport with the outer world, making him a part of the world, are drawn inward. He is no longer in any conflict because the stimuli to conflict are disregarded.

Factors which lead to such a failure in adaptation may be thought of in terms of constitutional inadequacies or of environmental difficulties, or of both. No specific constitutional factor can be demonstrated. One may recognize a quality which might be called "energy" which may be evaluated in very young children by their characteristic range of capacity for adaptive activity. It may be assumed that this capacity is determined by heredity and that it may be lowered by acquired structural damage. Granting this fact, one must still recognize the great importance of environmental circumstances in determining the development of "schizoid" patterns. A relatively unenergetic child may be encouraged and trained to meet his problems realistically, to make a frank effort to deal with them and to accept his own inadequacies without too great resentment or confusion. On the other hand, even a well-endowed child may learn to retreat if he is constantly discouraged and rejected.

Richard's constitutional endowment is apparently not good. He was a premature baby retarded in development, and with physical inferiorities. He clung to infantile satisfactions—thumb sucking—and showed from early years a tendency to retreat rather than to assert himself. These characteristics may suggest a deficiency in adaptive "energy." However, it is obvious that from birth he met with excessive difficulties in his environment. His mother resented her pregnancy with him inasmuch as that made her dependent on a hated husband. His father, who had "wanted to be a prize fighter," was frankly ashamed of his puny son.

Richard's statements about his mother indicate more confusion and frustration than those he makes about his father. Before his illness he said, "I *think* she likes me." During the breakdown, he alternated between expressions of admiration and projected death wishes. After he had become psychotic, he apparently was regressing to a very early Oedipal feeling when he said, "She can cure me any time. Oh, mama, I wish I could fight that man. Free my

mama, the only one I ever loved." The primary feeling for his father seems to be fear. "When my father is there, I can't win. He breaks my courage." Being however less completely rejected by the father than by the mother, he clings to the father by erotizing his fear and hatred, assuming a feminine rôle. This rôle is encouraged by the fact that other boys do not accept Richard and he is forced to play with girls. The feminine identification also probably has value to him in that it allows an "introjection" of the mother with whom no other satisfactory relationship can be obtained.

At the time the boy was first seen, he was apparently fairly well integrated on a homoerotic basis. Even then, he was meeting with derision and discouragement and was heavily burdened with anger and guilt. His conflict also may have been increased at that time by the sexual drives of his—apparently precocious—puberty. The treatment of the boy from that time on was such as to deprive him of every possibility for social adaptation. The increased harshness of his parents added to his hostility, and their attempts to force him into a masculine rôle left him completely helpless in a world of incomprehensible and intolerable realities. Schizophrenia at that point was the logical and merciful solution.

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RECENT ADVANCES AND PROGRESSIVE TREND OF NEURO- PATHOLOGY IN PSYCHIATRY*

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What has neuropathology contributed to psychiatry? The answer to that question is of two-fold nature.

On one hand, one can enumerate the contributions, past and present, in the field of structural pathology in various mental diseases. On the other, one may point to the modern function of neuropathology in psychiatry by emphasizing the new trend of thought which is developing in what is termed psychosomatic medicine and pointing out the rôle which neuropathology has played and can play in the revamped modern concept of the interrelation and integration of soma and psyche.

Past tradition, especially in the United States, has relegated neuropathology to the mere study of structural changes in pathologic conditions, but its field has not been defined by any scientific law.

Neuropathology, as an expression of investigation of dead structural pathology alone, has, in the writer's opinion, outlived its stage of major importance in an institute, such as the New York State Psychiatric Institute and Hospital, devoted to research applied to psychiatry.

The progressive concept of neuropathology which the writer has followed in the development, as principal research neuropathologist, of the department of neuropathology at the Institute, is a concept which streams from a composite picture in which investigations in structural pathology, investigations in experimental pathology and investigations in experimental physiopathology of the nervous system all play important parts.

As in any department of general pathology in which side by side with the histologic investigation of the pathologic structure, investigations are carried to establish pathologic functions (clinical pathology) so in a modern department of neuropathology, activities must revolve around, not only static microscopic investigation, but

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also around experimental investigation of function requiring ultimately anatomic and pathologic controls.

A modern department of neuropathology applied to psychiatry should therefore be constituted by a division of microscopic investigation, a division of experimental pathology and a division of experimental physiopathology. Both these latter divisions require generous facilities for animal experimentation.

With such concepts formulated, let us briefly review some of the recent contributions which neuropathology has offered to psychiatry.

Though not perfect in their final evaluation nor always of immediate practical value for clinical psychiatry, data have been furnished by histologic investigations, the knowledge of which has undoubtedly contributed to the progress of psychiatry. The data the writer is referring to have been collected by what he has termed the division of microscopic investigation.

One has only to go back to the pre-Kraepelinian era before the advent of Nissl and Alzheimer to remember the uncertainties existing as to the nature of general paresis. The description of the inflammatory nature of the paretic process and the histologic discovery of spirochetes in the brain have undoubtedly contributed to the classification of general paresis as an organic psychosis determined by lues, thus excluding its belonging to the group of psychoses once thought to be precipitated by overindulgence in sex or alcohol. Later on, with the advent of malaria therapy, neuropathology—and the Institute's department in particular—contributed to the histologic explanation of the remissions by pointing out the disappearance of the inflammatory component of the paretic process following fever therapy.

Parkinson's disease, once thought to be a functional disease, is considered now, thanks to neuropathology, to be the expression of structural involvement of the extrapyramidal system.

Chorea, especially the acute form, is another condition to which the label of functional disease was for a long time attached. Thanks to neuropathology we now know better.

Behavior disorders following infectious conditions puzzled psychiatrists for a long time, in view of the fact that not always was a link established between the infectious disease and the following

mental symptoms. Thanks to neuropathology, we are now acquainted with the cerebral structural involvement in epidemic encephalitis, measles encephalitis, scarlet fever encephalitis, whooping cough encephalitis, etc. The department of neuropathology of the Institute contributed two of the earliest publications in the United States on the detailed histopathology of encephalitis and encephalomyelitis in the course of measles.

Studies on the origin of senile plaques and amyloid bodies, contributed by the same department have enlarged our knowledge of the pathology of senile psychosis especially after new technical methods made it possible for us to study normal structure and pathologic changes of new cells—the microglia and the oligodendroglia.

Detailed studies of the pathology of Alzheimer's disease and Pick's disease have increased our knowledge of some of their characteristic histologic features. A concept of vascular origin of Pick's disease has been advanced by the department of neuropathology of the Institute on the basis of histologic investigations. A new variety of Alzheimer's disease, the adult variety, has also been postulated by that department. In arteriosclerotic psychosis, detailed histologic studies have given us new data concerning the histogenesis of vascular pathology. Emphasis on the primary involvement of the elastic membrane and on the division of vascular reaction into the two types of "hyperplastic" and "hypoplastic" has been advocated by the same department of neuropathology.

In connection with arteriosclerosis, neuropathologists have advanced the explanation that recurrent functional vasospasms are responsible for cellular destruction and small areas of softenings. Neuropathologists have devised a new method of investigation of the blood vessel supply (the Pickworth method) applicable to fresh tissue, and the department of neuropathology of the Institute has offered a staining method (Eros method) for the same purpose, but applicable also to material previously fixed in alcohol or formalin.

Neuropathologic investigations carried on in other institutions have also contributed to better knowledge of some of the toxic psychoses such as alcoholic psychosis, delirium tremens and Korsakoff's disease. The relationship of the so-called Wernicke's hem-

orrhagic encephalopathy to alcoholism has also been established.

In the field of the demyelinating diseases, great confusion has been temporarily eliminated through neuropathologic investigations. Conditions which once were considered to be clinicopathologic entities are presently considered to be only variants of the same fundamental process of demyelination.

Multiple sclerosis, diffuse sclerosis, Schilder's disease, Pelizaeus Merzbacher's disease and many others are at present unified and classified under one general heading. The department of neuropathology of the Institute has contributed one of the very first American histopathologic descriptions of neuro-ophthalmomyelitis. It has also for the first time contributed the description of the adult variety of the familiar type of encephalitis periaxialis diffusa. It has also contributed the first comprehensive, if only provisional, classification of the demyelinating diseases. Such a classification has been described in the English literature as "difficult to be improved upon" and has been incorporated in the United States in Grinker's textbook of neurology. The department of neuropathology of the Institute has also offered a new method (Roizin's method) for combined stain of myelin sheaths and lipids applicable to cases of demyelinating processes.

Neuropathologic investigations of pernicious anemia carried on at the Institute have provided us with better understanding of the vascular component of the cerebral histopathologic process in the direction of hyperplastic changes, as well as of its localization.

Histologic investigations of brain tumors by Cushing, Bailey, Globus and others have supplied us with a new embryonic concept of classification of some of the tumors, particularly of the ones of the glioma group. Material from the department of neuropathology of the Institute has formed the basis of Davidoff's monograph on brain tumors published by the State Hospitals Press at Utica.

Neuropathologic investigations of Huntington's chorea have given us a better understanding of the localization of the pathologic process in the basal ganglia and in the cerebral cortex. The department of neuropathology of the Institute is now interested in the restudy of Huntington's chorea from the standpoint, only recently raised, of the involvement of the so-called parapyramidal system.

Neuropathologic investigations from various sources have also furnished valuable data concerning pathologic damage related to shock therapy. We are now better acquainted with the histopathologic aspects of metrazol and insulin treatment, especially in relation to their important cellular and vascular pathology. The department of neuropathology of the Institute has substantially contributed to the study of cerebral damage in the course of insulin therapy, with particular emphasis on the hypertrophic and hyperplastic vascular changes. More controversial, are the data concerning the histopathology of electric shock therapy.

In the fields of mental deficiency and epilepsy, microscopic investigations have supplied additional valuable data on the pathology of familial amaurotic idiocy, tuberous sclerosis and myoclonus epilepsy. Tuberous sclerosis has been considered by our department of neuropathology as a form of diffuse neurospongioblastosis. A new histopathologic interpretation of megalomyeloencephaly has also been contributed by our department, which considers the condition the expression at times of diffuse medulloblastosis. Histochemical investigations carried on in the Institute's department of neuropathology have contributed to further knowledge of the chemical composition of cellular inclusions in both familial amaurotic idiocy and myoclonus epilepsy. New data concerning the endocrine systems of Mongolian idiots have been published by Benda's department of neuropathology.* The occurrence of cerebral toxoplasmosis, followed in certain cases by mental retardation, has been reported by Wolf's department of neuropathology.†

In the field of the so-called functional psychoses, reports have been accumulating, some of which have been contributed by our department of neuropathology on brain pathology in cases clinically diagnosed as manic-depressives or schizophrenics. Constitutional studies in the field of the nervous system have revealed, according to Lewis, inadequacy of the cardiovascular system, including the cerebral blood vessels, in the catatonic and hebephrenic types of schizophrenia. The writer is referring here to reports on structural changes, leaving until later the important problem of their evaluation.

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All these contributions of morphologic and microscopic investigations have, however, failed somehow to stimulate substantially the collaboration of the clinician and the neuropathologist.

The second field for neuropathologic investigations where an interest should develop and lead to a closer cooperation between the neuropathologist and the clinician is the one of experimental pathology, where ideas inspired at the bedside of the patient can be tested in the laboratory, and where ideas born in the laboratory can be tested by clinical investigations.

For example, recently a new avenue of approach to pathology of the nervous system has been followed. The writer is referring to the field of allergy. Experimental work done in this Institute, in both the departments of bacteriology and neuropathology, has established the importance, first of all, of cerebral pathologic changes in experimental anaphylaxis. Further steps in the development of such data have resulted in investigations in our department of neuropathology of the brain changes in a large group of diseases, the so-called demyelinating diseases, and the department has turned in a detailed paper appearing in the December, 1944, issue of "The Archives of Neurology and Psychiatry," in which the pathology of demyelinating diseases is interpreted for the first time in the light of allergic reactions. This contribution opens an entirely new field of interpretation for the cerebral pathology in both neurologic and psychiatric cases.

In addition, one can easily grasp the possible application of such experimental work to clinical problems and speculate over the possibility that allergic reactions may be at the base of some acute mental upsets through allergic shocks originated by autogenous mechanisms and in which the brain might represent the organ of shock. Because such a pathology is reversible in its mild and initial stages (edema, swelling, perivascular reaction) its presence and disappearance may be reconciled with the onset and clinical recovery of acute mental episodes.

Again, through experimental pathology, structural changes of the heart and joints of rheumatic fever have been found to be closely related to allergy. Now, chorea is closely related to rheumatic fever. Hence, allergic changes in the brain may be at the base of mental symptoms not rarely found in association with acute chorea.

In scarlet fever infection, its renal complications are being considered more and more as an expression of allergic reactions. Recently the department of neuropathology of the Institute has published the report of a case of scarlet fever encephalitis accompanied by a psychosis in which the brain pathology has been interpreted, for the first time, as an expression of allergic reaction.

The correlation of allergy to schizophrenia might be speculated upon on the basis of Breutsch's report* that 5 per cent of cases of necropsies of mental diseases disclose rheumatic heart disease. In 100 patients with schizophrenia the incidence is 9 per cent. It is Breutsch's contention that "rheumatic brain disease" to which his department of neuropathology has contributed detailed histopathologic reports can result in a typical clinical picture of schizophrenia.

The concept of allergic inflammation on which our department of neuropathology is presently preparing a report may clarify the significance of inflammatory changes in the brain of mental patients, in the absence of a history of clinical infection.

Mention here must be made of the so-called Schwartzmann phenomenon, a phenomenon related to allergy and consisting of experimentally induced structural pathology of the skin following repeated injections of bacterial filtrates. This phenomenon of local sensitivity might occur also in the brain, and its relation to the presence of bacterial toxins in the human body might open a new avenue of approach to the pathogenesis of acute mental disorders.

The field of allergy in both its clinical and pathologic implications may thus constitute a new fertile field of investigation in psychiatry, for which experimental pathology will have constituted the original inspiration.

On the question of electric shock therapy, how are the favorable clinical results to be explained? Neuropathology has contributed some of the controversial question of the presence or absence of cerebral structural damage in electric shocked brains. In the meantime, the approach to the problem through experimental pathology might supply important data especially in relation to transitory, minute structural changes. These findings in turn, may

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allow speculative thinking as to the possibility that clinical improvement might result from such changes. Hence experimental pathology carried in collaboration with the clinician might stimulate further research in attempting to find a drug, the effects of which on the brain structure and its functions might possibly equal the ones of the electric shock.

In acute exhaustive states, experimental pathology, conducted in the Institute's department of neuropathology to the extreme testing of starvation in animals has furnished us with interesting data related to actual structural damage, some of it reversible and some of it irreversible, which may accompany states of acute exhaustion.

In psychoses associated with nutritional deficiencies or in alcoholic psychoses, the mere psychologic approach to this problem was evidently insufficient. It was the laboratory and the neuropathologic approach in particular which established from an experimental point of view the importance of vitamin deficiencies in determining cerebral and peripheral structural changes. Hence, the knowledge derived from experimental pathology has been of help to the clinician in his therapeutic attempts. Our department of neuropathology has contributed the first comprehensive report on the cerebral pathology in the course of vitamin K deficiency.

Experimental pathology may also help the clinician through investigations presently being carried out in the same department in relation to diets deficient in one or more of the essential amino acids. It may be possible that the Institute's investigations in this new field will establish the importance of amino acids in the preservation in particular of both function and structure of the nervous system.

Experimental investigation on trauma of the brain and spinal cord carried out in the same department have corroborated the importance of vascular pathology, particularly in the direction of vasospasm and vasoparalysis, which have recently been considered responsible for the functional and structural brain pathology in traumatic encephalopathy.

Finally, experimental pathologic investigations carried out by the department of neuropathology have contributed additional knowledge to the histopathology of illuminating gas poisoning, cy-

anide intoxication, phosphorous intoxication, carbon disulfide intoxication, lead poisoning and indol and histamine intoxication.

The third field of activities of a modern department of neuropathology, as the writer has conceived it, the field of investigation in experimental physiopathology of the nervous system, may constitute the ground for the closest collaboration between the neuropathologist and the clinician.

The importance of such a common field springs from the recent development of psychosomatic medicine, which the writer hopes will gradually eliminate the unfortunate long-standing divorce between the laboratory side and the clinical side of psychiatry, a divorce which has handicapped progress.

It is logical that the necessity for more and more knowledge of normal and pathologic physiology of the nervous system will be felt, because of the ever increasing discoveries in the brain of controlling centers for some of the most important of our voluntary and involuntary functions. Knowledge of the anatomical structures and functional activities of the prefrontal and frontal areas and their association with other cortical areas or with the thalamus will become obviously important to those interested in frontal lobectomy. Knowledge of central representation of motor and sensory aphasia will become more nearly essential for the understanding of the psychopathology of the organic psychosis in which disturbances of language constitute important symptoms. Knowledge of the structure and functions of the thalamus, hypothalamus, its nuclei and their frontal diencephalic, mesencephalic and rhombencephalic connections will become essential for those who wish to understand the diencephalic control over emotions and their endocrine and vegetative components. Knowledge of neural anatomical pathways, physiopathologic mechanisms and functional interrelationship will become more and more needed by those who wish to emphasize with authority the function of various portions of the central and peripheral vegetative nervous system.

Theoretical and practical knowledge of physiopathology will add therefore to the stature of whoever wishes to discuss competently functional disturbances and their relationship or apparent independence from structural damage of the central nervous system.

Through harmonious working of its three main divisions, micro-

scopic investigation, experimental pathology and experimental physiopathology of the nervous system, a modern department of neuropathology will, the writer is sure, contribute substantially to further progress in psychiatry.

To reach this goal, it is essential, however, that both clinicians and neuropathologists be better prepared to appreciate each other's viewpoints.

No matter how familiar with the structural and physiologic aspects of psychiatry a neuropathologist is, he should also possess substantial clinical training.

It is essential for the neuropathologist to be equipped with knowledge necessary to evaluate the importance of psychological factors and their mechanisms under normal and pathologic conditions in order to understand the value of psychogenic elements and avoid the error of forcing the concept of an organic structural basis for all mental disorders.

Conversely, a good psychiatrist should possess substantial knowledge of the organic structural physiologic and pathologic aspects of psychiatry in order to avoid the opposite error of forcing a pure psychological explanation of abnormal mental mechanisms.

The clinician's training should extend not only to theories but also as much as possible to the practice of anatomic, physiologic and pathologic techniques; training in anatomic, pathologic and physiodynamic techniques is certainly not incompatible with training in psychodynamics and psychopathology. On the contrary, these basic aspects of training should supplement each other and not develop at the expense of each other.

The interplay of psychogenic and somatic factors was emphasized by the present writer years ago, in the following propositions. In mental diseases one may recognize three major groups of diseases: In the first one, psychogenic stimuli are primarily at work, and the cessation of such stimuli may result in recovery. The damage done by such stimuli, if any, is a reversible one. In a second group, psychogenic factors are active at the onset of the disease. Later on, they may result through secondary vegetative and somatic imbalance in actual organic structural changes. In this group, once the psychogenic factors have ceased to operate, the organic damage may interfere with the process of full recovery.

In a third group, the organic group, definite etiologic and organic pathology can be primarily established at the onset of the disease. Here the process of recovery depends on the elimination of the causative agent as well as on the healing of the organic damage.

Such an approach would reconcile the viewpoints of the so-called functionalists and structuralists. Such a distinction between altered function and altered structure is indeed artificial and pleonastic because repeated impairment of function may bring about impairment of structure.

Clinicians trained in neuropathology and physiopathology would be in a better position to grasp the value of interrelationship between function and structure and avoid the dogmatic attitude that schizophrenia, for instance, is nothing but a functional disease. Such a viewpoint will hamper progress; because, having decided *a priori* that schizophrenia is a functional disease, those holding this opinion will find it necessary to eliminate from the category of schizophrenias all cases, the study of which reveals presence of organic changes of the nervous system. This would be a process of elimination based on the dogmatic idea that a diagnosis of schizophrenia is incompatible with the presence of organic changes of the nervous system. It would be an attempt at salvaging a method of study which the late C. C. Chamberlain of Chicago called "the method of the ruling theory."

A better approach to the study of mental pathology from both the clinical and pathologic aspects is the use of the method of multiple working hypothesis.

A neuropathologist possessing a clinical experience is undoubtedly in a better position to utilize this method in his investigations, because of his knowledge of both clinical and pathologic implications of the intricate problem of mental pathology. Similarly, knowledge of pathology, experimental physiopathology and experimental pathology will put anybody in a more favorable position for the understanding and evaluation of the structural changes which may be encountered in studies of brain pathology, let us say, in schizophrenia.

This question of evaluation of the pathologic changes in mental diseases, especially in the so-called functional psychoses, is of paramount importance. Experience and vision are essential, to avoid confusion.

Take the case of a neuropathologist looking at slides of a brain belonging to a case clinically diagnosed schizophrenia. He finds organic structural changes. His first impulse is to consider the case as an organic one. Yet one must not forget that three explanations are available for the structural changes discovered under the microscope: (a) The changes may be the expression of organic complications in the course of schizophrenia; (b) the changes may be the expression of a primary organic disease; (c) the changes may be part of the composite picture of integration of soma and psyche.

Both structuralists and functionalists could easily agree on the first interpretation, namely that the organic changes are the expression of complicating factors or intercurrent diseases in the course of schizophrenia. But the acceptance of this interpretation as well as the acceptance of the second interpretation, i. e., that the structural changes may be the expression of a primary organic disease and that therefore an error of diagnosis was made, could be confusing or misleading unless the third interpretation be first evaluated, accepted or discarded. The writer is referring to the interpretation that the structural changes are a part of the composite picture of schizophrenia viewed from the standpoint of psychosomatic psychiatry in which integration of soma and psyche is looked for.

Such an interpretation will obviously present itself for discussion to both clinicians and neuropathologists if both are acquainted with the psychological, physiological and anatomical data which must necessarily constitute the foundation of the psychosomatic approach.

Let us analyze the facts; we are all acquainted, through experimental physiopathology, with the importance of emotions over, let us say, adrenalin and possibly other endocrine secretions; we all know the importance of adrenalin over the sympathetic nervous system and of the latter over the vascular system. In the course of emotional conflicts, anxiety and tension, vasomotor imbalance is a well-known accompanying factor. Vasospasm and vasoparalysis both may occur or alternate in the course of emotional crisis or continuous emotional tension.

Now, once disturbance in vascular function is accepted, there should be no great difficulties in accepting the corollary that disturbance in function may ultimately lead, if repeated, to disturbance in structure. Repeated vasospasms or repeated vasoparalysis with their accompanying transitory vascular obstruction or slowing down of the blood circulation may result in structural damage of the blood vessel walls or of the surrounding tissue, through both the individual or alternating mechanisms of ischemia and hyperemia.

Will it then be surprising that structural pathologic changes might occur in the brain, in the course of prolonged and persistent emotional conflicts and tension? And would it be fair to label such changes as an expression of a primary organic disease, thus denying the close relationship of such changes to the composite psychosomatic picture of schizophrenia?

A neuropathologist trained in psychopathology and physiopathology will avoid the mistake of labeling such cerebral pathology as an expression pure and simple of organic psychosis. In turn, the clinician versed in the facts of physiology and pathology related to the nervous system, will not discard the facts which do not seem to agree with the method of the ruling theory, and will not think exclusively in terms of psychogenic mechanisms at the expense of the physiopathologic and pathologic ones.

It seems to the writer very simple to conceive the necessity of knowing the ways and means through which symptoms develop. For instance, psychiatrists cannot deny the importance of the cerebral circulation in the precipitation or aggravation of mental symptoms. The writer will only mention arteriosclerosis with its transitory functional vasomotor imbalance, aggravating mental symptoms. Yet how many psychiatrists are actively interested in familiarizing themselves with the regulating mechanisms of the cerebral circulation, through the interplay of the sympathetic and parasympathetic system, the regulating action of the depressor cardiac system and the regulating function of the carotid system, all factors which require knowledge of structural and physiopathologic mechanisms?

Such knowledge can be acquired in a well organized department of neuropathology where facilities for experimental physiopatho-

logic work and facilities for subsequent anatomic and pathologic control are at hand.

Correlation between clinical data and physiopathologic investigations can be exemplified by the investigation by the Institute's department of neuropathology of the physiopathology of bulbo-capnine intoxication. Our experimental work leads us to the conclusion that bulbo-capnine intoxication does not reproduce the clinical picture of a catatonic type of dementia præcox as maintained by previous authors. Bulbo-capnine in our estimation is only responsible for the reproduction of the "cataleptic component" of catatonia; and such a component can be reproduced in animals in which various parts of the cerebral cortex have been removed experimentally or even in the absence of the whole cerebral cortex. In the course of such experimental work, we had the opportunity to use a chamber for CO₂ and oxygen in which some of the animals under the influence of bulbo-capnine were placed. Very interesting results occurred in some of the animals, which gradually changed from cataleptic states to states of what the observers construed as violent manic excitement, with the animals jumping wildly all over the room, followed gradually by slow return to the previous states of catalepsy. In some cases under the same circumstances, appearance of involuntary movements reminiscent of generalized muscular dystonia occurred in the animals. Such experiments should be repeated and anatomical control sought for possible localized cerebral pathology.

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Is it possible to hope for an ever-increasing number of psychiatrists trained in both the clinical and somatic aspects of psychiatry? It is the present writer's firm belief that such a goal can be achieved. If psychiatrists who wish to specialize in the analytical aspects of psychiatry find the time for intensive training along such lines, the writer does not see why programs cannot be evolved in which, side by side with the psychodynamic training, enough time can be assigned to appropriate training in the structural and physiopathologic foundations. One type of training should not be exercised at the expense of the other.

Personally, the writer believes that the training in structural and physiopathologic aspects of psychiatry should extend to all psy-

chiatrists, research and practising ones, as well. Such a training for the practising psychiatrist should not be a formal one, to cover theoretical requirements. It must be one that will make the psychiatrist deeply conscious of the importance of physiology and pathology and make him take notice of the importance of physiopathologic mechanisms, second to none of the psychopathologic ones.

Even if one were to take up the field of psychoneurosis where the knowledge of physiopathology has often been considered superfluous, the writer feels that knowledge and appreciation of the organic components of neurosis will facilitate the task of therapy.

Knowledge of physiopathologic mechanisms will undoubtedly help the practising psychiatrist to grasp the possibility that in some of his cases the functional manifestations of, let us say, acute anxiety states do not necessarily always spring from psychogenic stimuli.

Indeed, some of these states may spring from a primary organic shock of the vegetative nervous system. These vegetative shocks might be brought about by some cardiovascular pathology. They may spring from an abnormal stimulation of the vegetative nervous system—they may spring from autogenous allergic shocks related to abnormal intermediary metabolism or abnormal intestinal absorption. In such cases the onset of the anxiety may be definitely organic. The fear of the return of such an attack may subsequently bring into action psychogenic components.

One must not think of psychosomatic medicine in terms only of influence of psyche over soma but also in terms of soma over psyche.

In the department of neuropathology at the Institute, the writer has endeavored to guide his personnel along the basic concepts that a neuropathologist should also be as thoroughly versed as possible in problems of clinical psychiatry.

The writer hopes that identical training of the clinicians, the necessity of which is bound to be felt with the development of the psychosomatic approach to psychiatry, will bring closer together men interested in the organic structural as well as in the functional aspects of mental pathology.

To quote Myerson's very recent statement: "The prime basis for any biological science, namely the controlled experiment, now appears as the hope of those who look beyond classification of the vaguely known and analysis by means of metaphor and symbols, to a real science of psychiatry."

In the development of this science, a modern department of neuropathology finds its place in training and research in the field of microscopic investigation, experimental pathology and experimental physiopathology.

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ORGANIC DETERIORATION

The Use of the Worcester-Wells Memory Test for Differential Diagnosis

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According to the United States Bureau of Census report for 1940, approximately 54 per cent of the patients first admitted to the mental institutions throughout the United States for that year had what are known as "organic" psychoses.¹ It is only natural, therefore, that one of the most frequent tasks confronting the clinical psychologist in a progressive mental hospital is the problem of testing for "organicity," or the organic mental syndrome. This is especially true for those puzzling, borderline cases where the psychiatrist is undecided as to whether psychogenic or organic factors predominate.

Psychiatrists have been aware of the organic mental syndrome as a fairly well-defined clinical picture since the early part of this century.² It was consistently found that those psychoses accompanied by diffuse reduction of brain size, cases chiefly of senility, paresis and Korsakoff's disease, revealed certain mental features. This psychological core of the organic mental syndrome involved chiefly disturbances in intelligence, memory and retention span.³ Also present very frequently, were other accessory symptoms; emotional lability, reduced scope of attention and preservation of personality, and other changes. As a result of the findings of the brain pathologists, a structural background to this symptom-complex was established and there was always to be found a *diffuse* reduction of functioning neurone bodies. Although prognostically not so bad as a generation ago, recognition of the organic mental picture is always ominous, since it always points to a diffuse involvement of the brain such as one finds in senility, arteriosclerotic softening, paresis and other conditions, sometimes curable, but often associated with massive neurone death.

In diagnosing the organic mental syndrome, the psychiatrist generally makes use of a crude battery of unstandardized tests, which attempts to evaluate the various functions. Actually, the psychiatrist is forced to rely upon his experience, or "clinical hunches,"

and hence there are often differences of opinion even among well-trained clinicians as to whether a certain mental picture is or is not "organic."

Since the organic mental syndrome is a fairly well defined clinical picture, it is only natural that clinical psychologists for many years have been working on tests which would provide ready and reliable tools for diagnosis. The Babcock Deterioration Test, first published in 1930⁴ was an attempt to measure "deterioration" by contrasting preserved verbal ability with timed efficiency tests. Although low scores were obtained with paretics, the same low scores or low "efficiency indices" were also obtained with schizophrenics; and it has been very difficult, using this test, to distinguish between the two. Moreover recent investigators^{5, 6} have thrown some doubt on the wisdom of using vocabulary as a reference point of prepsychotic functioning, since vocabulary itself may be subject to deterioration.^{7, 8, 9} Furthermore the rationale of this test may be questioned on the basis of the fundamental dynamics involved. The poor performance of the organic patient results from the reduced number of neurone connections available. The low score of the schizophrenic, on the other hand, is based on such global disturbances as inattention, blocking, and other different manifestations of autism, which may later disappear with spontaneous recovery or after treatment. Essentially the same criticism can be leveled at the Shipley-Hartford Scale¹⁰ which has been unable to distinguish with certainty between organic deterioration and alleged schizophrenic "deterioration." Again one finds that, using this test, organic patients do poorly on the abstraction test because of a reduced number of functioning neurones, while the schizophrenic does poorly because of various types of inattention, although one must assume that the engrams in schizophrenia are intact and potentially ekphorizable. Moreover, since Shipley's standardization group consisted only of students from the fourth grammar grade through college grades, it is reasonable to question the validity of his norms in groups of elderly patients.

In testing for the organic mental syndrome, there are also in use the Vigotsky and other sorting tests¹¹ as well as the Hunt-Minnesota Test,¹² although the author of the latter is very careful to emphasize the many difficulties and pitfalls in applying this test for

organic deterioration except in the hands of an experienced worker.¹³ For some years the Bellevue-Wechsler Intelligence Scales¹⁴ have been used as an aid in determining organic reactions. It is claimed that, for the organic cases, there are characteristic patterns of performance for which the tester is instructed to watch. In the latest edition, deterioration quotients and other arithmetical calculations have been advanced for diagnostic purposes. Greene, however, has suggested that "the Bellevue Scale subtests may be too short and too subject to practice effects to be reliable enough for individual profiles to use in studies of deterioration made through a comparison of subtest scores."¹⁵ Moreover, Magaret and Wright have recently brought strong criticism to bear on such a use of the test and have pointed out that the "signs" found in the literature to distinguish diagnostic groups are often fallacious.¹⁶ Richard and Schaefer have also emphasized the need for caution in relying on scatter analysis and in their own words have asserted "that scatter analysis is really maximally useful and still safe only when used in conjunction with other tests."¹⁷ No review of the differential diagnosis of the organic reaction would be complete without mention of the Rorschach test.¹⁸ A very experienced Rorschach worker, of which there are not too many, presumably should be able to detect Piotrowski's organic signs. However, the tester would have to be extremely experienced, and general results show that the test is not infallible in all cases. Moreover, this procedure—which is the longest of all—takes in the neighborhood of two hours and only emphasizes the need of some shorter procedure for general clinical use.

The foregoing tests which have been summarized very inadequately in a few paragraphs, represent the labor of many years and the aspirations of a number of psychologists who at one time or another advanced these tests as clinical tools for detecting organic deterioration. Despite their value, the open-minded student is driven to the unfortunate conclusion, that no known tests at the present time will always and infallibly give a verdict as to deterioration on an organic basis. *Whatever use they have is largely of negative value.* By this, it is meant that if the patient performs well, an organic deterioration can be ruled out. However, if he performs poorly, this may be explained by a great number of fac-

tors the interpretation of which can easily become haphazard and unreliable and which may point to a number of pathological processes. To repeat, if a patient performs well on some one or all of the tests mentioned, an organic mental picture can be ruled out, and this holds true to a large extent whether the procedure used takes half an hour or four or more hours. With this thought in mind, the present authors endeavored to find some simple test, sensitive for organicity, which would take a short time and which could be easily administered and scored.

Wells and Martin¹⁹ more than 20 years ago, standardized a memory examination suitable for psychotic patients. They established norms for the 12 parts of their test, based on a group of 50 adults with a mean age of approximately 21 and recommended the reporting of test performances in "Memory Quotients" by dividing the individual's score by total norms for an "average" person and multiplying by 100. The authors believed they found certain tendencies toward failure as characteristic of the various psychotic groups. Also in a later publication,²⁰ Wells described certain profiles on a psychograph which were thought to be significant for diagnostic divisions. He justified the inclusion of the time factor in this memory test, pointing out that psychologically there is no sharp difference between a memory and a controlled association experiment and that the time of recall is a valid criterion of the accessibility of material to consciousness.

The introduction of the time factor and of average norms at once made Well's and Martin's memory examination superior to and more critical than the average battery of tests used in psychiatric clinics. Yet further refinements and accuracy were needed, since the age factor had not been taken into consideration in establishing the adult norms.

However, this vastly important factor of age was subsequently taken up by Shakow and others⁸ who elaborated the memory test developed by Wells. Working on the problem of its inadequate standardization, they studied memory functioning in a normal standard population, considering carefully the important factors of educational and intellectual levels. Subtest norms were obtained for different age groups ranging from the ages of 15 to 90. At the same time, some slight modifications in the original test were introduced.

In administration it must be noted that the 12 items of the Worcester-Wells Memory Test²¹ are divided into two groups, seven are included under "Old Recall" (OR); personal information, current information, school information, alphabet, counting backward from 20 to one, naming the states for familiar towns, and naming of common objects, whereas five items form the "New Recall (NR) group; sentence memory, repeating of digits backward and forward, pictorial recognition and a 50-idea story. The subject is not required either to read or write. In scoring, speed and accuracy are considered in the Old Recall subtests; accuracy alone, in New Recall; Old Recall and New Recall Memory Quotients for persons of any age can easily be obtained on the basis of the total norms provided. Through listing the established age item norms on the summary sheet beside the individual's scores, failures on any single item can be conveniently appraised.

It should be noted that the report of Shakow, et al., covers a number of arteriosclerotic and senile patients besides a large group of normals.⁸ Their work shows conclusively that even in normal individuals, Old and New Recall are definitely affected by age, Old Recall being better preserved than New Recall. Decline in New Recall showed a steep curve and was found to begin early. Performance of the patients in the two diagnostic groups was consistently at a lower level than that of normals of the same age group, seniles performing invariably more poorly than arteriosclerotics. But the falling off was found to be proportionately the same in both OR and NR, a finding which was not in conformity with the usually accepted belief that New Recall shows a greater disturbance in these elderly diagnostic groups. As the difference in memory functioning between the two psychotic groups and normal individuals of the same decades appears to be relatively small, the authors concluded that "... age is by far the most effective disturber of memory, and that psychosis adds only a little to an already marked disturbance of function."⁸

An investigation of the older Terman vocabulary²² corroborated previous findings²² and showed that there was a decline in the vocabulary of normals beginning around the age of 70 and that in both seniles and arteriosclerotics vocabulary performance was considerably disturbed beyond what would be expected from age alone. This pointed again toward the dangers of using vocabulary as an

indicator of original mental level either in aged persons or in psychotics.

In our search for a suitable test for organic deterioration, the Worcester-Wells Test was given with slight modification for Greater New York locale (Lassner) to 56 new male admissions in most of whom the question arose as to organicity. Although the ages ranged from 15 to 86, the older group had greater representation, with a median age of 54. On the basis of final diagnosis the cases grouped themselves as shown in Table 1.

TABLE 1

Diagnosis	No. pts.
Alcoholic psychosis	11
Cerebral arteriosclerosis	11
Dementia præcox	4
Epileptics	8
General paresis	6
Involutional melancholia	6
Intracranial neoplasm	1
Little's disease	1
Manic-depression	1
Multiple sclerosis	1
Senile psychosis	4
Psychosis with pernicious anemia	1
Without psychosis	1
	56

Although no standard deviations have been published by the authors of this test, it was found expedient to consider memory quotients of 80 or above as being within normal limits.

In reviewing the results, five cases of paresis, in which there was no question of an organic mental reaction, will be presented first of all. These cases had been considered as deteriorated by the psychiatrists handling them, an opinion confirmed by slurred speech and by medical, serological and neurological findings. They had all received the malarial treatment without recovery.

Case 1 is that of B. B., aged 54, formerly a wholesale chemical salesman. There was a syphilitic infection in 1918. This patient obtained a memory quotient (M. Q.) of 75 on the Old Recall. Here were revealed old memory weaknesses especially in the subtests for

alphabet, school knowledge and object naming. As was to be expected, the performance was even poorer on the five untimed subtests for New Recall where his memory quotient was 21. Similarly it was found that in every case of organic deterioration, there was weakness in New Recall. Sometimes this weakness would be very marked, as in the case given, sometimes less marked. Old Recall, as determined by the seven timed tests, was found to be much less critical for organic deterioration. Thus of the five paretics tested, the O. R.'s and N. R.'s of three were as follows: *Case 1*, O. R. 75, N. R. 21; *Case 2*, O. R. 23, N. R. 28; *Case 3*, O. R. 79, N. R. 37. In these three paretics, the M. Q.'s were considered subnormal for both Old Recall and New Recall. However, using 80 as a lower limit, the O. R. could be considered normal, in the next two paretics, although the N. R. was badly impaired. Thus: *Case 4*, O. R. 81, N. R. 39; *Case 5*, O. R. 88, N. R. 21. It will be observed that New Recall was poor in all these paretics. These cases of paresis have been presented in some detail, since the diffuse effect on the brain of the spirochete presents an objective picture which comes close to being ideal for the organic mental reaction and which almost answers experimental laboratory requirements.

On the basis of the two categories of New Recall and Old Recall, four groups of cases naturally presented themselves when one considered 80 as a lower limit of normal performance.

TABLE 2

	No. pts.
Group A: O. R. and N. R. below average	18
Group B: O. R. preserved, N. R. below 80	14
Group C: O. R. below 80, N. R. average or better	6
Group D: O. R. and N. R. average or better	18
	—
	56

Offhand, one would be tempted to categorize all patients in Group A as organic, since memory appears to be impaired in both Old Recall and New Recall. Thus it was seen that the clinically severe cases of paresis fell in this group. However, even a brief review of Group A warns one of the dangers in using memory quotients as a direct index of organicity. Among the 18 cases, for example, was

to be found one long-standing schizophrenic. In this case as in others of a similar category, it was felt that the poor performance had to be explained by processes other than organic deterioration. Thus the same criticism applies to this test as to similar psychological tests which purport to be specific for organicity. All such tests are without positive value unless an active schizophrenia, depression, clouded state or other global disturbance in attention can be ruled out. In other words, an active, sustained and maximal attention must be maintained throughout the test to make the results of positive value in diagnosis.

It has already been seen that, although organic deterioration could be demonstrated in the poor recent memory of all of the "standard" cases of paresis cited, there were two with preserved Old Recall. These fall into Group B with impaired N. R. and normal O. R. However this group, consisting of 14 patients, included many that were not organic; and, here again, the poor performance had to be accounted for by the other disease processes which have been noted.

Thus one sees that, as a tool for diagnosing organic deterioration, this test is largely of negative value. The present writers have already stated that all clear-cut cases of organic deterioration, did poorly on the recent memory tests. *But the converse is also true, if a patient does well on these standardized recent memory tests, an organic deterioration can be ruled out.*

This indicates the value for the clinician of Groups C and D where recent memory was found intact and which were, therefore, *not felt* to be organic. Of the six patients in Group C, it was felt that poor performance on Old Recall could largely be accounted for by poor cultural background or by low intelligence. Of these six cases, one patient died and the remaining five were paroled or could be considered eligible for parole. These patients, many of whom were rather simple, childish and unlettered individuals, could have easily been called "organically deteriorated" by an unwary clinician.

However even greater justification for this test is found in Group D where there is normal functioning in both spheres. From a study of this group, one gets the impression that not a few cases are sent to the observation hospital and after a brief study are labelled

"deteriorated" because the examiner felt that they should be called so on the basis of their life histories. In Group D, which showed normal performance in both New and Old Recall, were found many individuals who offhand appeared as if they might be "deteriorated," but who were not found to be so when tested. In this group were many clinical pictures often seen in mental institutions, such cases as the life long psychopaths, alcoholic and otherwise, epileptics with episodes or conduct disturbance, and many depressed seniles and arteriosclerotics who offhand were thought to be deteriorated. In this group also were some cranks and eccentrics with increasingly poor life adjustment with advancing age. In this group there was one person eventually diagnosed "without psychosis" who had been thought to be deteriorated apparently because of his advanced age.

A few illustrative cases are briefly summarized to show the value of this test in ruling out deterioration.

Case 1 was that of A. V., aged 55, O. R. 106; N. R. 140; his diagnosis of alcoholic "deterioration" seemed to be largely based on the history. The patient had not worked for 15 years and had forced his family to support him while he was almost continuously intoxicated. Testing showed him to be of superior intelligence and to have an intact memory. This patient could be considered "deteriorated" only in the sense of social and economic failure.

Case 2, T. H., aged 36, O. R. 111, N. R. 126, had a history of many admissions to mental institutions for alcoholism. He was consistently diagnosed as a case of "alcoholic deterioration." This man was a thinly disguised schizophrenic and hallucinated very actively under the influence of alcohol. He was finally diagnosed as a case of alcoholic hallucinosis after his memory was found to be intact.

Case 3, A. P., aged 55, O. R. 101, N. R. 114, had been diagnosed epileptic "deterioration." He had had convulsions since birth, with many previous admissions to mental institutions, largely because of rage attacks. The intact memory would suggest as more adequate, the diagnosis of epilepsy with confused and clouded states.

Case 4, was C. V., aged 71, O. R. 106, N. R. 140. Apparently biased by the axone damage frequently found in pernicious anemia,

one physician described this vagabond as showing "marked mental deterioration." Actually the patient was a life long psychopath, and although educated as a minister, was making a vagabond adjustment. The test showed that there was no real organic deterioration; and a review of the case would seem to suggest placement in the psychopathic group.

Case 5 was that of B. A., aged 34, O. R. 88, N. R. 88. This 34-year-old Porto Rican had been committed after a brief paranoid episode ending in an attempt to kill himself by illuminating gas. He was in a coma when brought to the hospital. Because of this, the question arose as to organic involvement. However, fairly high scores in both spheres, despite a bilingual background, definitely ruled out an organic mental reaction. The patient was finally diagnosed dementia præcox, paranoid type.

Case 6 was patient N. B., aged 84, O. R. 122, N. R. 108. Before his admission, this patient had been diagnosed as a case of "senile psychosis." An old man, living by himself since the death of his wife, he had failed a great deal physically. He was finally discharged to a home for the aged with the diagnosis of "without psychosis. Here the memory test was of critical value in ruling out the alleged organic mental syndrome.

CONCLUSIONS

1. The question of organic deterioration, arising where there is a diffuse loss of functioning brain cells is a problem frequently presented to the clinical psychologist, and the question has been raised as to whether the traditional battery of procedures might not be developed into a more critical series of carefully standardized tests for organicity.

2. The Worcester-Wells Memory Test, providing a variety of procedures for memory testing, has been described and has been shown to be unique among memory tests in that it is standardized for adult age groups. This is enormously important, since memory testing should allow for the fact that there is a normal loss of memory with age.

3. Organic deterioration, usually known as the organic mental syndrome, has been shown experimentally to involve a number of functions. Of these, memory, which is always involved, is also the function most amenable to exact testing.

4. In the elderly diagnostic groups, it has been found that on the average, memory, although impaired, is not greatly below the normal expected for corresponding ages (Shakow). In fact, a large number of elderly psychotics are found to have normal memories. This indicates that in the advanced age groups, as in all age groups, emotional and personality difficulties are paramount in deciding whether an individual can live outside an institution.

5. In applying the Worcester-Wells Memory Test, a subnormal score may be the result of low intelligence, of schizophrenic or allied preoccupations of various kinds, of melancholic retardation, of dreamy and clouded states and, in short, of a variety of widely diverse psychiatric conditions, all of which interfere with maximal and sustained attention.

6. Therefore, caution should be exercised with this test as with all so-called "deterioration" tests in interpreting subnormal results, as a low score may result from global configurations of a nature quite different from organic deterioration.

7. However, assuming proper test conditions with sustained and maximal attention, normal or better than normal scores can definitely be interpreted as ruling out deterioration, whereas subnormal scores provide a rough quantitative index of the degree of impairment.

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THE PROBLEM OF "MAGIC GESTURES"

BY EDMUND BERGLER, M. D.

The history of the "magic gesture" in psychoanalytic literature is one of confusion. The reason for this is primarily that the term is used—if at all—in different and often contradictory ways. The first to use it was Ferenczi, in 1913, in his paper, "Development of the Sense of Reality," where he applied the description, "magic gesture" to one part of the baby's attempt to grasp reality via omnipotence. According to him, the magic gesture represents the third of the infant's four stages in achieving the sense of reality—the stage in which the child gives signs (for instance, sucking movements of his mouth, stretching of his hands toward objects, etc.), and misconceives the response of the environment to be the result of his own omnipotence. Since Ferenczi's authority is acknowledged among analysts and that paper widely read, many analysts still associate the term "magic gesture" with the meaning designated for it in that paper.*

A few months after Ferenczi's paper, Freud's "Totem and Tabu" was published (1913). In this, Freud does not use the term "magic gesture" directly, although he describes different techniques of magic. Analysts, strangely enough, have often mistaken that basic book of Freud for a purely anthropological work. The result, as far as the "magic gesture" is concerned, has been to increase the involuntary confusion in the minds of many colleagues (of course, through nobody's fault), since these colleagues have regarded anthropology rather as a hobby than as an obligatory part of knowledge.

Years later, in 1924, Hans Liebermann presented at the VIIIth International Psychoanalytic Congress in Salzburg a paper entitled, "On Monosymptomatic Neuroses."² In this, Liebermann uses the term "magic gesture" in an entirely different sense. He believes that it is possible to recognize unconscious omnipotence in certain symptoms: ". . . That type of neurotic uses his symptom in the meaning of a magic gesture *with the purpose of demonstrat-*

*A critical review of Ferenczi's paper is found in the writer's "Thirty Years After Ferenczi's 'States in the Development of the Sense of Reality.'" To appear in *Psychoan. Rev.*

ing to the person against whom he directs his neurosis how that person should suffer or perish." Liebermann speaks primarily of hysteriform "bodily symptoms" which, until the time of his paper, had been exclusively in the domain of the internist, but concedes that magic gestures may be encountered in every neurosis. He suggests that, in cases in which analysis is impossible (hospitals, clinics, etc.), the unconscious ideas of omnipotence should be isolated in psychotherapy by concentrating exclusively on analysis of magic gestures. Liebermann even believed that the explanation of his "magic gesture" to the patient could thus be used as a short cut in therapy. He seemed to have the naïve view that simply repeated naming of the unconscious technique embedded in the magic gesture could eliminate the neurotic symptom automatically, and he bolstered that assumption with claims of clinical successes achieved in that way. He was obviously mistaken, and his suggestion was passed over and forgotten. Unfortunately, his excellent clinical observation was forgotten, too.

Since then the term "magic gesture" has seldom been used in our literature. When it is employed, it is with Liebermann's definition in mind, and even then with modifications.

In an attempt to clarify the meaning of the term, the writer would like to subdivide magic gestures into four groups.

TYPE I

Liebermann's "magic gesture" is obviously a result of unconscious feeling of guilt because of inner aggression. It is seldom observable in its pure form. Experience has proven that, provided it is applied for some time, it takes on a more complicated structure. Then the masochistic complication comes to the fore, automatically making the quick destruction of the symptom impossible. In the present writer's opinion, Liebermann described correctly the surface reverberation of a deeper conflict. His observation itself, although incomplete, is of the highest merit, and secures for Liebermann, who unfortunately died young, an eminent place in psycho-analytic science.

TYPE II

Analysts are faced with magic gestures of another type in practically every analysis. The magic gesture of this type expresses

the dramatization of the following unconscious thought: "I shall show you, my bad Mother (Father) how I wanted to be treated."* The accidental beneficiary of this behavior is impressed with the "niceness" of the person performing it. He sees only the gift or kindness displayed, not the aggression hidden behind it. If one is not familiar with this unconscious technique of masochistically-tinged aggression, one can only conclude that there is a contradiction in the usually malicious or aggressive behavior of the specific person, and optimists about human nature can triumphantly conclude that everyone is at bottom kind. Clinical experience, however, proves that the person performing the magic gesture of this type accuses without conscious knowledge his bad mother (father) of being unkind, and demonstrates to her (him) *ad oculos* how he allegedly wanted to be treated. For example, the writer would like to mention a patient of his, a business woman, known in her environment as a "slave driver," a hard, bitter, and sometimes rather cruel person. One of her girl friends said of her: "That woman hasn't a kind spot in her makeup, even if you look for it with a magnifying glass." Yet this woman was always showering some little girl with presents, kindness and invitations. The few persons who knew about it found her behavior so strange and unusual that even those who were her so-called friends suspected her of homosexual relations with the beneficiaries of her magic gesture. Analysis could prove that the patient used the magic gesture to express an inner accusation against her father, whom she considered cold and neglectful. That she identified with the girl whom she treated kindly was obvious; on the other hand, at the same time, she also played the rôle of the kindly "corrected" father.

So far, one could say that the magic gesture of Type II is but a modification of Liebermann's original Type I. True, the person making it does not directly express aggression turned upon his own person because of unconscious guilt feelings, but acts out an inner accusation via dramatized kindness. In both types, however, hid-

*Owing to the confusion surrounding the "magic gesture" in analytic literature, Type II is sometimes also attributed to Liebermann, for instance, by Reich, despite the fact that Liebermann's publication, at least, describes something similar but not identical. It is not clear who first described the magic gesture of Type II. Psychoanalytic literature does not contain, however, any deeper analysis of the magic gesture, such as is attempted in the present paper.

den aggression seems to be the basic element. This apparent similarity between the two types is proven by clinical experience to be superficial and false. It is evidenced time and again clinically that the weak aggression displayed in the magic gesture of Type II is but a covering cloak for a deeper layer, which is genetically psychic masochism. In other words, a three-layer structure is involved in neurotics who make use of this type of magic gesture. The dynamically-decisive first layer consists of an unconscious wish to be mistreated. This wish is warded off by a severe super-ego reproach leading to the second layer, pseudo-aggression toward the disappointing mother (later, father). This defense, too, is forbidden by the severe inner conscience, with the result that a form of kind giving is established. This third layer is expressed in the magic gesture, which contains elements of aggression in a sort of weak repartee. Our skepticism in encounters with a magic gesture in analysis must be directed, first against the superficial kindness, and, then, against the deeper aggression. The neurotic who makes use of magic gestures is deeply masochistic and is trying frantically to deny this by means of a three-layer unconscious dramatization. In other words, magic gestures represent a complicated inner defense mechanism.

Interestingly enough, the pseudo-aggression displayed in layer two, which is hidden and must be analytically deciphered, is often so strong that it prevents the application of the third layer (pseudo-kindness) toward living persons. In such cases, the material chosen for dramatization is an inanimate object, not because it has any importance in itself, but because it is more suitable for the purpose. In a previous paper³ the writer has described such a case: A schizoid patient suffered from, among other things, reckless spending. This brought him into serious conflict with his penurious mother, toward whom he used this method of showing aggression. In addition to unconscious motives of revenge, self-injury, and "mechanism of orality,"* a further curious incapacity to make a decision in the selection of objects for purchase came into play. Wishing to order three shirts, the patient went to an expensive shop, where he saw hundreds of samples. Very definitely and

*Details can be found in the writer's monograph, "Psychic Impotence in Men," Medical Edition, Huber, Berne, 1937.

without hesitation, he narrowed down the choice, selecting perhaps 30 samples. Although he could readily separate the ones he liked from those he considered in bad taste, he was incapable of making a further choice among those which appealed to him, and, according to his statement, there was no way out of his indecision but to order the entire 30. On another occasion, he went to a book store to buy a certain recently published book. The salesman showed him several dozen publications which had appeared within recent months. The patient rejected a number on the ground that they did not interest him. About 15 remained, and the patient, unable to come to a decision, bought all 15.

From the history of this patient one could learn that his mother preferred some of her six children to others, neglecting the others. The patient felt that he had been discriminated against. By means of his extravagance and indecision, he acted out a "magic gesture." Unconsciously he performed a symbolic act, clearly, in the superficial layer, an act of aggression toward his mother and one designed to show her how he would have liked to have been treated. His unconscious formula was: "You, Mother, have discriminated against some of your own children; at any rate, you have played favorites. I, however, cannot even choose between indifferent objects—shirts, books, etc. How much less would I be capable of doing so among my own children!" Behind this tearful aggression, deep masochism was hidden. That defense-aggression was not the real reason for his actions was also proved by the fact that, by being a spendthrift, he also showed conscious aggression toward his mother, who paid the bills. His pseudo-aggression was a palimpsest only, covering his deep masochistic attachment to his mother.

In place of inanimate objects, some neurotics choose animals as the recipients of their magic gestures. One of my schizoid patients was an enthusiastic "pigeon feeder." He collected crumbs incessantly and spent hours watching the pigeons eat from his hand, with tears in his eyes the while. He did not wish to be put in the same category as "ordinary animal-loving humanitarians riding their ridiculous pigeon-horse," as he, strangely enough, called his competitors, paraphrasing Lawrence Sterne's "hobby-horse" ("Tristram Shandy"). Correctly enough, he placed the empha-

sis, not on the pigeons, but on his tears, although he was incapable of explaining their cause. Unconsciously, his tears meant: "You treated me badly, bad Mother. Look how I wanted to be treated—kindly." The previously-described, three-layer structure was fully visible under the analytic microscope, as was the specific determining factor in the symbolic use of pigeons.

Whether the neurotic uses the mechanism of magic gestures on living persons, inanimate objects, or animals, the fact remains that he always expresses in it an aggressive reproach, hidden behind the disguise of the superficial layer: unconscious identification with the "beneficiary" and idealized mother (father).^{*} Hidden still further, behind this reproach, is the real, dynamically-effective, psychic masochism, which is warded off by pseudo-aggression.

Some neurotics place the emphasis, in their magic gestures, on the irony which they execute in the pseudo-aggression of layer two. One patient, for instance, chose as her "beneficiaries"—exclusively millionaires. This female patient was a physician and had many members of the social register as patients. These patients constantly took advantage of her, claiming poverty, and she, seemingly believing them, made their fees ridiculously low, even lower than those of less wealthy patients. For the sake of discretion, details cannot be given. They were so ludicrous, however, that one observer remarked: "The millionaires should erect a monument to you with the inscription: 'To the only person who has pity on the financial worries of millionaires.' "

The fact of psychic masochism in magic gestures is observable particularly in neurotics of two types—alcoholics and gamblers. We know that in the initial stages of inebriation there is a hilarious and jocose mood, which later gives way to a depressive, bellicose tendency. Only the former mood—the jocose one—is important for our understanding of the magic gesture. Without going into details given in three longer papers,⁴ the writer will mention only that chronic alcoholism is, in his opinion, one of the specific masochistic techniques used in repetition of the situation of oral disappointment, complicated by pharmacodynamic factors. The writer does not mean that the neurotic uses alcohol, as some observers naïvely assume, simply to get what was refused him in childhood.

^{*}There is double identification in every magic gesture. The patient acts both parts.

He uses it for exactly the opposite purpose—to repeat the oral refusal allegedly experienced at the hands of the pre-Oedipal mother.

The next questions are: Whence come these tendencies; when are they acquired; and why are they repeated? These questions lead us back to a view of early childhood. Every human being is, in his first months of extrauterine life, dependent on his mother's breast or the milk bottle. The first approach of the baby to reality is an oral one. Some people never outgrow intrapsychically this dependence. Even the unpsychologic outerworld often jokingly compares the dependence of the drinker upon his whiskey bottle to that of a baby upon his bottle. For instance, the brother of one of the writer's drinking patients sent the man, years before the latter entered analysis, an ironic gift on his twenty-fifth birthday, a milk-bottle with a note asking, "Why not switch to this once more; it harms you less." The brother did not even know how near to the truth he was: Of course, the idea of simple substitution of milk for whiskey was naïve; yet there are psychologic connections between the milk bottle and the whiskey bottle. It has struck a number of analytic observers—the first of this long series being Freud, 40 years ago—that what the alcoholic really does is to bring up to a higher psychic level of development the unconscious recollections of the early days of infancy, when to drink from the breast or bottle was not only a caloric necessity but a pleasure, too. The alcoholic unconsciously apparently returns to this oral phase, and his regression is supposed to explain his addiction. So far so good. The question remains whether there exists a "pleasant," direct return to old desires on the oral level. Do alcoholics really desire, in a form of unconscious substitution, merely to "get" what was once denied them? In that case, why do they consume alcohol instead of milk? How can we account for the self-damaging and self-destructive tendencies associated with heavy drinking?

The present writer personally doubts whether the contents of the oral regression of neurotics can be summarized in the simple formula, "I want to get." Quite the contrary; he believes these neurotics want to take revenge for oral disappointments under self-damaging conditions. The writer has mentioned repeatedly in pre-

vious years the triad of the "mechanism of orality."* It represents, not at all the reactivation of the wish to get, but a means of indulging in chronic disappointment through being refused. Once the refusal is established via unconscious provocation, the vicious circle of aggression in self-defense and self-pity is brought into action.

"What type of people are these?" one could object. What reasonable person will repeat a disappointment to the point of self-destruction? If a child is refused candy, for instance, he can buy as much candy as he likes when he grows up. Why, as an adult, should he repeat, himself, without knowing it, the situation of the child being refused candy? From the viewpoint of logic, the reaction of these neurotics is incomprehensible. Unfortunately, the unconscious part of the personality is not in the least governed by logic. Seemingly, the wish to show up the mother as a refuser is of greater importance to these sick people than the original wish to get. Their psychology is that of the boy who cries, "It serves my mother right that I've frozen my fingers; why didn't she buy me gloves!" In this philosophy of the boy, one sees some aggression and spite toward his mother, but executed in self-damaging conditions, because of an unconscious feeling of guilt, since every aggression toward the mother or her successive representatives is inwardly forbidden.

We have, in the formulation, unconscious aggression in self-damaging conditions, one of the clues to the understanding of the alcoholic addict. His basic mood is depression, apathy, or affective instability until he gets his drink. Let's quote a patient, a society woman: "To avoid depression I drink. Whenever I drink I am happy at first, then feel a deep depression coming on. I keep on drinking in order to recapture my initial happiness. Unfortunately, in vain." We can understand neither the patient's pre-potus depression nor her initial happiness *in potu* unless we take into account the unconscious reasons mentioned here. All alcoholics are depressed because they labor under the unconscious fantasy that they were not loved enough by their mother in childhood. This fan-

*This mechanism consists of self-constructed defeats, repression of the provocation, conflict with the self-created enemy seemingly in self-defense, and finally, self-pity with unconscious masochistic enjoyment.

tasy has no reference to the later, Oedipal wishes. It refers to the pre-Oedipal, oral stage of childlike megalomania, in which the child identifies love with being given milk. Basically, the harmless and necessary act of weaning is perceived by the infant as a terrible injustice and act of malice.⁵ Every child experiences this early feeling of injustice and lack of love; the oral neurotics are those people who are unable to overcome it. Of course, the conscious rationalizations of alcoholics for their respective depressions are different. They drink, if we want to be naïve and believe them, because of disappointment or disillusionment, weakness of will, weariness, inability to cope with a situation, or inner emptiness. No matter how sincerely they believe this consciously, it is a mirage. For many of these "misfortunes" and "blows of fate" are unconsciously brought about deliberately by the patients themselves. In some cases, of course, the misfortunes are real enough, but the patient unconsciously perceives them, not as obstacles to be overcome or adapted to, but as maternal punishment which is to be answered with oral aggression, possible only in self-damaging conditions which alleviate the inner guilt feelings. Again and again, with eternal monotony, is reenacted the triad described, "I am treated unjustly; therefore I may be aggressive and pity myself as well," with the monotonous drinking revenge that follows.

Here we meet seemingly with an impasse. If our assumption is correct, that the alcoholic addict repeats unconsciously the situation of the bad mother refusing and orally frustrating him, why, then, does he allow himself to be served drinks? Why not repeat the situation of scarcity and refusal directly? To understand his reasoning, we must take into account two facts: First, drinking in itself is at first an attempt at self-cure and reparation, based on the idea, "Mother refused me; now I will give myself everything she refused. I am independent and autarchic." This element of reparation accounts for the initial happiness when drinking. In other words, drinking is at first a triumph over the refusing mother. The second fact to be taken into account is even more complicated. It refers to the inner identification of the drinker with his mother.*

*A similar conclusion was reached, though through a different trend of reasoning, by English analysts.

To clarify this fact of identification, the writer might mention an incident which happened to a patient of his years before he entered analysis because of alcoholism. This man once had a violent conflict with his mother, whom he accused of being instrumental in obtaining what he considered an unfair share of his father's estate. His mother defended herself against these—by the way, unjustified—accusations. During their argument, the man drank one brandy after another. His mother asked him reproachfully: "Why do you drink so heavily?" "What's that to you?" was the son's brusque retort. His mother objected with the sober and rather melancholic statement: "Everything which harms you harms me, too." The patient responded by taking two brandies at once. In evaluating the scene, we have to assume that the man, in identification with his mother, wanted to harm her. He was filling her, so to speak, with poison. Actually, he harmed himself; in doing this, his self-damaging or psychic masochistic tendencies had their expression.

In other words, the initial jocose mood of the drinker springs from the attempt to repair the original oral trauma by establishing an autarchy and state of independence from the allegedly refusing mother and also from the attempt to retaliate on the mother in unconscious identification with her. This jocose phase also reflects irony, achieved through making fun of authority in general, and at the same time, kindness toward the environment. Everyone is familiar with the transitory initial mood of the drinker: "You are my friend; everybody is my friend." This mood shows the ambivalence of the conflict: aggression toward the intrapsychic mother-image coupled with denial of loss of love. It also expresses propaganda for one's own kindness, based on the theme: "You see how good I am though Mother was so bad to me."

The tendency toward logorrhoea^a often observable in drinkers in the jocose phase gives us an indirect hint as to the genetic basis of the illness. The superabundance of words—giving of words—is an indirect reproach toward the denying mother. It is a "magic gesture," an unconscious aggressive device designed "to show the mother up" by giving freely of the very thing which she denied, based on the reasoning, "I shall show you through my behavior how I wanted to be treated originally by you." Behind this aggression, a deep masochistic attachment is hidden. The potus-logor-

rhoea demonstrates in an unconscious innuendo that the child in the drinker wants allegedly to be given kindness (words=milk, love) by the mother. Magic gestures must always be scrutinized for the unconscious aggression hidden behind their apparently gracious façade. They must also always be scrutinized for the defense mechanism they represent. The drinker makes use of magic gesture to give an exaggerated impression of his desire to be "given," and thereby to disguise his real aim, that of being unjustly treated. The masochistic enjoyment of being refused, not pleasure in being given, is his real object in life.

An excellent example of the magic gesture in drinking is found in Charles Jackson's "The Lost Weekend." The hero in this, drinking in a bar, starts a conversation with an entertainer, a girl, who asks him why he is so depressed. The man immediately fabricates a sad tale. According to him he is disappointed over his wife's frigidity (In reality, he is not even married). In the next breath, he invites the girl to spend an evening with him visiting high class night clubs, as she joyfully agrees to do. Of course, he disappoints her by completely "forgetting" their date. In this incident, we see unconscious aggression in the complaints about being unjustly treated (and not by chance by a woman) and the simultaneous attempt to show the treatment desired, exemplified in the kind gesture toward the girl of no importance. The repressed aggression comes to the fore, however, in the eventual disappointment of the girl, reflecting the disappointment experienced originally through the mother.

Another example of the magic gesture, this time a clinical one, is offered by a well-to-do patient who, in the initial stages of inebriation, would promise people who happened to be at his table aid in getting jobs. Seemingly full of kindness, a trait really foreign to him, he would promise them recommendations to various important acquaintances. Confronted by the applicants on the following day, he always denied ever having made such promises. Only once did he keep his word; however, on this occasion he wrote the promised introduction in such ambiguous terms that it gave the man to whom it was addressed the impression that its bearer was an impostor, to be disposed of quickly.

In gamblers, magic gestures are often associated with, in addition to the factors just sketched, a deep superstition. Without going into the psychology of gamblers,^s one can assume that these people are deeply masochistic. They use a specific device of the "mechanism of orality," wanting unconsciously to lose in order to place their opponent, be he an individual or a bank, in the position of the orally-refusing pre-Oedipal mother. The gambler wishes to reduce this mother to absurdity as a giving person. On the other hand, when gambling, he consistently reduces to absurdity also the "reality principle" (Freud); for, in the game, chance alone dominates, and he tries to direct it, via "omnipotence of thoughts." In other words, the old rebellion against the logic governing the "reality principle" is renewed. The gambler insists on the "pleasure principle," that is, on childish megalomania.

A patient of the writer related that once in Monte Carlo, during a period of winning, she was approached by a casual woman acquaintance, who told her a hard luck story and asked for a loan of 100,000 francs. The patient's finances were in a bad state, as usual; her whole fortune consisted at that moment of her winnings, exactly 110,000 francs. Without hesitation she gave the money to the woman, without asking for a receipt, without inquiring into the background of the woman, and without even ascertaining the truth of her story. From that moment on, her luck changed, since she had to win now to live. She lost and lost. Many years later, in analysis, it became clear that this patient habitually performed magic gestures with the three-layer structure described before. The case was interesting because of the amount of money involved and because the patient complicated and increased the usual element of masochism involved in every magic gesture—by losing consistently after performing the magic gesture. Unconsciously she expressed in this conduct: "My bad Mother (casino, bank) takes away everything from me; after robbing me she lets me starve!" Needless to say, the casual acquaintance in the instance mentioned never did pay back the money. The patient did not even resent this. ("What can you expect from the bad mother [casual acquaintance]?")

TYPE III

There is still another magic gesture, which the writer called in previous publications the "negative magic gesture."^{*} It constitutes an unconscious irony directed against the educator, the unconscious formula being, "I shall show you in my behavior how I did not want to be treated." The first example of this type which the writer could observe was offered by a schizoid patient, who, while waiting for her appointment, made movements with her mouth reminiscent of a wild animal snatching at its victim. The writer asked the patient, who was a movie fan, "Do you imitate the lion in Metro-Goldwyn-Mayer's pictures?" Analysis showed that she played in this gesture the rôle of her own "devouring" mother, "showing up" her mother in caricature. To the writer's surprise, the interpretation struck home, and the symptom disappeared after a few weeks, never to recur, judging from a letter received from her nine years after the close of her analysis.

Another example of the magic gesture of type three sometimes produces great technical difficulties in clinical analysis. The writer refers to the use of silence as a main weapon of resistance in analysis. This silence may have very different reasons, which have been discussed in another paper.⁹ One of the possibilities is the indirect demonstration of "being refused." The patient misunderstands the analyst's silence as oral refusal and retaliates masochistically. Such a patient habitually answers the question, "Why don't you talk?" with the observation, "You are silent, too." Unconsciously he means, "I will show you by my behavior how I don't want to be treated." If silence involving the magic gesture of type three is not understood, a stalemate lasting for years may result.

The magic gesture of type three has some connection with a mechanism first described by Aichhorn, who did not associate it with magic gestures. Aichhorn observed a boy, who, without knowing it, made facial grimaces while being scolded by his teacher. Unconsciously the boy was overcoming his fear through identification with the scolder. His grimace was, the present writer might

^{*}Previously, the writer subdivided magic gestures into two groups, "positive" and "negative." They correspond to Types II and III, respectively. He has since abandoned his former nomenclature.

add, a caricature of his teacher's scolding, a form of unconscious reducing to absurdity.

Interesting parallels can be found between the magic gesture of type three and the mechanism described by Anna Freud as "identification with the aggressor."¹⁰

COMBINATION OF TYPES II AND III

In one exceptional case, the writer observed a queer combination of the mechanisms of types two and three of the magic gesture. This patient, a well-to-do society woman, twice married ne'er-do-wells. At first she lived out with them magic gestures of type three; in other words, she caricatured her mother's (father's) alleged neglect of her. She was disappointed in her incompetent husbands, completely overlooking the fact that she had created for herself the situation of being refused, having picked out these men herself. In each case after a short time, she was "through" with the man, but could not get rid of him. Then she would start, to her surprise, to act the rôle of the giver; in other words, she switched to magic gestures of type two. In this phase, she was helpless against the current husband, who behaved "as no gentleman should."

TYPE IV

In rare external conditions, a specific type of magic gesture can develop. The required situation is the pronounced outward coldness of the mother toward the child. One patient, a woman of 40, was brought up in a *milieu* in which it was believed that cold and detached behavior toward the child was the best educational medium. Her mother pronounced the theory; her father followed, though reluctantly. The patient herself was a deeply masochistic person, who consistently spoiled her opportunities in life. She was brought into analysis by one of her many husbands because of constant "rows." According to him, though she was ordinarily cold and detached, she could rave "like mad." He himself was a "cold person," who hated a display of feelings. It was obvious that the woman's choice of such a "cold" personality for a husband was based on narcissism (he was a copy of herself) and on her masochistic repetition of her mother-child situation. She had some knowledge of analysis. Eighteen years before, she had entered analysis

in another country, only to interrupt it after eight months "because she could not talk" and because the analyst kept repeating in general terms that her behavior was based on "resistance" without being able to change that behavior. She suspected that she repeated in her "rows" her conflict with her mother, overlooking, of course, that all of her reproaches against her "cold" husband were unjustified since she herself had chosen him, unconsciously, because of his coldness. Deeper analysis showed that her explanation was not sufficient. She was not only repeating her fruitless attempts to get some affective reaction (even hatred!) from her cold mother; she was acting, in her own rows, the rôle of the angry mother, her unconscious reasoning being, "I can't stand that coldness; even your anger and hatred would be more pleasant!" One can see that she was acting neither a magic gesture of type two ("I show you how I wanted to be treated") nor one of type three ("I show you how I did not want to be treated"), but seemingly something different.

* * *

Magic gestures of the various types do not constitute symptoms *per se*. They represent part of the personality makeup, are encountered on every genetic level of libidinous-aggressive development, and must be analyzed in every attempt to take the "whole personality" into account. These personality "difficulties" are extremely resistant, especially those of type two; strangely enough, those of type three are sometimes easy to change. No analysis is, in the writer's opinion, complete which does not change the craving for neurotic magic gestures. These gestures are embedded so deeply that patient and analyst overlook them only too easily.

Ironically enough, one could ask one's self whether it makes sense to destroy the mechanism of magic gestures (especially of type two) in analysis. The friend of the first patient mentioned in this paper, who sent that patient into analysis, showed skepticism about the advisability of destroying this mechanism in the patient, after pronouncing her harsh but correct judgment of her friend, "That woman hasn't a kind spot in her makeup, even if you look for it with a magnifying glass." This woman, who herself excelled in magic gestures, asked, "If you destroy that in her, what will be left but her mean and cruel personality?" This woman was

wrong, since the pseudokindness of magic gestures is paralleled by the bitterness of other character traits. Since the personality is a unit, no eclectic selection of symptoms from the viewpoint of "nice" and "not nice" is possible.

To what degree in general magic gestures, even in persons who are not too neurotic and are sometimes euphemistically described as "normal," are one of the bases of what is called decent behavior, is quantitatively difficult to determine.

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A NONSURGICAL TREATMENT OF THYROTOXICOSIS

BY DONALD J. McINTOSH, M. D.

The problems in the treatment of thyrotoxicosis, especially following the onset of psychotic manifestations, are difficult. Few diseases have occasioned more differences of opinion than thyroid dyscrasia, and while the etiology is still not clear, many of its characteristic symptoms are caused by overactivity of the thyroid gland. It is said that an increasing number of investigators have become convinced that thyroid hyperactivity is but a link in the chain of the disease; and as knowledge of endocrinology advanced the part that the thyrotropic hormone of the anterior pituitary played in producing the clinical picture of thyrotoxicosis came to the front. Nonsurgical procedures in recent years have been more frequently employed, such as treatment by iodine alone, or radioactive iodine, or by X-rays.

The recent discovery of thiouracil as a depressor of thyroid function has stimulated further interest in the treatment of thyrotoxicosis by other than surgical means.

Thiouracil¹ is said to possess the property of inhibiting the endocrine function of the thyroid gland. Compounds belonging to a group of substances possessing the thio-urea grouping were found to prevent the formation of the active thyroid principle. Thiouracil is a white crystalline powder, readily soluble in sodium hydroxide, slightly soluble in water, and insoluble in ether, ethyl alcohol, and acids. It is relatively stable, is odorless, but has a bitter taste.

MODE OF ACTION OF THIOURACIL

Williams and Bissell² have reported that following administration of the drug to certain animals, particularly rats, thyroid enlargement resulted in a few days. Histologically, hyperplasia of the acinar cells and a decrease in the colloid of the follicles were found. A drop in the basal metabolic rate occurred, which, after a few days, became marked. These changes can be prevented by the administration of desiccated thyroid or thyroxin. They can also be prevented by hypophysectomy but not by the use of iodine. These facts suggested that the preparation acts directly on the thyroid

gland, inhibiting the production of thyroxin, this in turn leading to a decreased metabolism and to increased activity of the pituitary gland. In man, it was found that following treatment by thiouracil for a few weeks, the protein-bound iodine of the plasma reached low normal or subnormal levels, indicating that thiouracil inhibits thyroxin production. It was concluded that the stimulating effect of desiccated thyroid with thyroxin on the metabolic rate is not inhibited. There has been observed a latent period between the initiation of treatment and a demonstrable fall of the metabolic rate. Similarly a latent period is noted before clinical improvement is subjectively or objectively apparent. Articles have appeared in recent months in which thiouracil has been used as a preoperative treatment in thyrotoxicosis prior to subtotal thyroidectomy.

REPORT OF A CASE OF THYROTOXICOSIS WITH PSYCHOTIC
MANIFESTATIONS TREATED WITH THIOURACIL

M. A., a married woman, aged 36, was born in Norway and came to the United States at the age of 21. She has two children, one aged 10 years and one of one year. Her marital life was reported to be happy, and she was a good home maker. There is no history of severe illness or operations. She seemed to possess a well-integrated personality. In 1939, at the age of 32, she showed a change in personality when she was described as being nervous and restless, with depressive tendencies. She consulted a physician who made a diagnosis of hyperthyroidism, but she showed only moderate response to treatment. Upon being advised to change her environment, she spent three months in Norway. Upon her return the patient appeared to be quite well again. In 1942, she became pregnant, her prenatal course was normal, and delivery was uncomplicated.

In April, 1943, M. A. became depressed and unstable, a change of scene was again advised, and she lived away from her family for a few weeks. Details of the treatment she received then are unknown, but it is said that in September, 1943, her basal metabolic rate was normal. In December, 1943, she was still depressed and made a half-hearted attempt at suicide. Hospitalization was advised. She had lost a good deal of weight, and on January 1, 1944, when hospitalized, she was described as showing evidence of hyper-

thyroidism, i. e., enlarged thyroid, tremors, tachycardia, and exophthalmos. She was about 20 pounds underweight, her pulse rate was 136.

Following hospital admission, treatment with iodine (Lugol's solution) and mild sedation produced no improvement in her toxic state. She was considered for surgical treatment in April, 1944, but upon examination it was found that she was a poor risk. She was markedly tense and tremulous, her weight had fallen to 87 pounds, and her basal metabolic rate could not be obtained, as she was unable to cooperate satisfactorily for the test. Following rest in bed and some sedation with the administration of iodine, the basal metabolic rate was found to be +35.

On May 1, 1944, treatment with thiouracil was commenced, with 8 mgm. per day—2 mgm. in the morning, 4 mgm. at noon, and 2 mgm. in the evening. There was no apparent change, either subjectively or objectively for the first two weeks, although about eight days following the beginning of treatment, the basal metabolic rate was found to be +16.

On May 15, she was becoming less tremulous and felt more comfortable, and her pulse rate was between 96 and 110 instead of the previous rate of 115 to 130.

Two weeks later, a pronounced change in this patient's condition was noted. She was ambulatory with limited activities, the tremors had subsided, she had gained seven pounds, and her emotional reaction was exceedingly good. Three weeks following the initiation of treatment, her basal metabolic rate became essentially normal with a rate of +1 to +3 on repeated tests.

After the administration of 8 mgm. daily for a period of six weeks, the treatment was discontinued. Following withdrawal of the drug, no signs of toxicity recurred, the B. M. R. remained essentially normal from +1 to +3. Menstrual periods had returned about this time after an absence of five or six months, and the thyroid appeared to be smaller in size. She showed a steady increase in weight, and six weeks after the initiation of treatment her weight was 115 pounds, her pulse rate was from 88 to 100. Repeated blood examinations showed no abnormalities in the blood picture. Urinalysis and blood chemistry were within normal limits.

After a rest of two weeks, she again received thiouracil, 8 mgm. per day for a period of two weeks. Her weight gain continued until she reached 121 pounds, her pulse rate ranged from 85 to 95, and her basal metabolism rate remained normal.

The psychotic manifestations gradually subsided during this period and on July 19, 1944, she was considered to be recovered from her psychosis. She returned to her home on July 23, 1944.

On September 17, she visited the hospital and appeared to be quite well, showing no toxic features, although there was still a little exophthalmos and a very slight enlargement of the thyroid. A basal metabolic rate was not done at this time.

Thiouracil treatment in this case has apparently produced a subsidence of toxic and mental symptoms, and a markedly improved physical state with no side effects. The results of this nonsurgical type of treatment are encouraging.

Fitz³ has stated that the ultimate result of surgical treatment of thyrotoxicosis is uncertain. Operative treatment interrupts a vicious cycle through an attack on hyperactivity of the thyroid gland, but it does not reach the fundamental cause of the disorder and thus cannot be considered a curative procedure.

Reveno⁴ treated nine cases with thiouracil, with six showing satisfactory results, characterized by a cessation of disturbing symptoms, fall in the basal metabolic rate, and gain in weight. Another responded favorably at first, but developed rapid enlargement of, and hemorrhage into, the gland and was subjected to surgery. One patient with diabetes failed to respond to therapy. The results from the responsive patients appeared as good as those following successful thyroidectomy.

Frequent blood examinations should be made for the possible detection of the development of agranulocytosis.

The dose of thiouracil recommended is 4 to 6 mgm. daily, in divided doses.

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PSYCHOGENESIS IN DELIRIUM TREMENS

BY RALPH ROSENBERG, M. D.

It is frequently presumed that the symptomatology of delirium tremens is a direct toxic result of alcohol. Occasionally, one varies this central theme by speculation that the symptoms may be due to impurities in alcoholic beverages, or to vitamin deficiencies resulting from food restriction during alcoholic debauch.

Contrariwise, several recent writers minimize the importance of toxic factors. Rather vaguely, they stress the importance of personality in the development and course of delirium tremens. Hoch,¹ for example, notes that when the predelirious personality is of the introverted type, none recovers from the psychosis, whereas among the extroverts about 90 per cent recover. Noyes,² speaking of acute hallucinosis, says, "Certain deep seated personality characteristics in the individual probably explain why a given chronic alcoholic develops this disorder rather than delirium tremens."

ILLUSTRATIVE CASES

The following cases are presented in an attempt to help clarify the rôle of psychogenesis in the etiology of delirium tremens.

Case 1

L. S., a Negro, was born 26 years ago to poverty-stricken North Carolina sharecroppers. The patient worked incessantly on the farm and had little time for schooling. At 19, he decided he was old enough to be paid for his labor and left home. Having no funds, he worked as hired hand for a neighboring tenant farmer until he earned enough to pay transportation to New York City. There, he worked as dishwasher and porter. He finally obtained what he described as an excellent job as truckmen's helper at the magnificent salary of \$20 per week. He boasted that at this salary he was able to obtain a furnished room for himself. In March, 1943, his firm went bankrupt. Subsequent employment was sporadic, and wages averaged \$10 a week. To his intense regret, he was compelled to give up his furnished room and move to a Bowery "hotel." Asked for his reaction to this situation, the patient replied, "I just had to take it." A month later, L. S. began to drink a pint of whiskey a

day. After two months of Bowery whiskey, he became tremulous, and saw terrifying hallucinations of lions and elephants. These hallucinations lasted two weeks, although he did not drink during the second week. Significantly, two days after the hallucinations ceased, the patient heard voices saying, "Get up, go to work, get a job." These auditory hallucinations lasted five days. For some weeks thereafter, the patient was self-absorbed and withdrawn, then recovered his spontaneity.

This is a mere thumbnail sketch of a man's life and psychosis. Yet, several striking facts can be observed. First, there is a correlation between the patient's early struggle against poverty, his exorbitant satisfaction at achieving financial success (as symbolized by his furnished room) and the complete collapse of his personality at subsequent financial failure.

He began life as a sharecropper's "slave." It is safe to conclude that he sought to protect himself against his early basic anxieties (feelings of inferiority or insecurity) by a compulsive urge to earn money. The psychosis followed almost immediately after he lost his job, and the compulsive urge was frustrated. The hallucinatory voices saying, "Get up, go to work, get a job" were mere verbalizations of the lifelong, unconscious, compulsive urge. One feels that overindulgence in alcohol was merely a minor incident in the events and emotions producing the psychotic episode.

A second point of interest is the simple hallucinatory form. Projected voices issuing commands are frequently observed in short, frankly schizophrenic episodes.

The existence of terrifying animal hallucinations is a major phenomenon in delirium tremens. No understanding of the disease is possible unless this hallucinatory form is explained. One probably cannot brush this problem aside by supposing that animal hallucinations are caused directly by the toxic effects of alcohol, for, of course, nobody supposes that there is either an animal hallucinatory center in the brain which is stimulated by the toxin, or that there is an animal hallucinatory inhibiting center which is paralyzed by alcohol and allows animal hallucinations to occur. It seems evident that the animal hallucinations must be produced by a symbolic, dynamic process like, say, the projected homosexual voices and images of paranoid schizophrenia. L. S.'s animal hallucina-

tions occurred during a prolonged drinking bout and lasted for several days thereafter. During such intoxication the cortex is dulled and apparently cannot elaborate complex hallucinatory forms. During this period, the patient's anxiety was intense. His compulsive drive to earn money had been defeated. Thus, the patient had lost his only defense against his hostile world. The world became overwhelmingly dangerous. In his intoxicated state, this dangerous world was symbolized by threatening animals. But why did his dulled brain select animals to symbolize the threatening mood of the world? The answer may possibly come from an unexpected source. In the Rorschach test³ it has been shown "... that the animal kingdom, with its endless variety of forms and shapes, offers itself more readily as a concept than any other content area." It may not be remarkable, then, if the drugged and handicapped cortex of delirium tremens selects the most readily available images for hallucinatory formation.

Soon after L. S. stopped drinking, the hallucinatory form changed from threatening animals to admonishing human voices. This change seems to have two sources: first, reduction in toxicity, allowing more reasonable symbol selection; and second, the beginning of recovery. The threatening animals symbolized fear of the world due to the defeat of the compulsive drive to earn money. The admonishing voices are to be interpreted as symbolizing the patient's returning hope of accomplishing his drive. This is not an ideal mechanism for recovery, but it illustrates Freud's observation that the way back to reality is often along the path of fantasy or hallucination. Both forms of hallucinations shown by this patient represent projections essentially similar to the projections of schizophrenia. The only toxic effect of the alcohol, if the analysis outlined here is correct, would be to simplify the first hallucinatory form.

Some weeks after the disappearance of hallucinations, the patient lost his self-absorbed, withdrawn mood. This clinical sequence duplicates events in a schizophrenic episode. In the latter, withdrawal from reality appears first, to be followed by hallucinations. In recovery, the hallucinations disappear first, then the withdrawn mood disappears. The connection between delirium tremens and schizophrenia is shown more clearly in the following case.

Case 2

W. S. S., was a 52-year-old, single, white male. His prepsychotic personality was shy, seclusive, oversensitive. He had been alcoholic for many years. This patient had been working as a grocery clerk until shortly before his hospital admission. His employer was sarcastic and overcritical and several weeks before the onset of the psychosis had told W. S. S., "You are no good around here, you do less work than a man of 70." The man's response to this trauma had been to increase his alcoholic consumption to three quarts of wine and one and one-half gallons of beer daily. After 10 days of this diet, the patient saw white spots before his eyes which soon formed a gigantic spider. He was apprehended by State troopers after wandering about in the woods for three days trying to escape the spider.

On September 3, 1943, W. S. S. was admitted to Central Islip State Hospital. He presented the classical picture of delirium tremens. His face was gray in color and cold to the touch, and he perspired freely. He had tremors of the lips and upper extremities and was so weak as to be almost in collapse. The mood was one of extreme apprehension, and he freely confessed the terrifying hallucination of pursuit by the horrible spider. The patient was put to bed, and sedatives and fluids were given freely. By the next morning, September 4, 1943, he had gained complete insight into the animal hallucination but was somewhat blocked. His physical condition returned to normal in a few days. During the mental examination, the employment history was obtained. After describing an employment period, the patient usually appended: "I did a good job there. I always like to do a good job."

On September 11, W. S. S. became tremulous and agitated. He was seclusive, self-absorbed and refused to talk about himself. On September 18, he declared that other patients looked at him peculiarly, because he was "nervous" and they wanted to tease him. By October 2, 1943, the paranoid system was fully developed. He said that he saw and heard all the other patients talking about him, ridiculing him, calling him derogatory names. During ward interviews, the patient often repeated his urgent desire to do things well. The continued repetition of any theme is excellent clinical

evidence that an unconscious compulsive trend is at work. Too, the patient often remarked that his sister had not answered his letters in recent months. He wrote five letters to her while in the hospital and was depressed at her continued failure to answer. He reiterated "I guess she doesn't answer because she is disgusted with me."

The repetition of these two themes enables one to peer into the personality structure and determine why it broke when it did. The oft-repeated phrase, "I always like to do a good job," shows an unconscious compulsive desire for perfection. The continued over-concern with his sister's silence shows a compulsive need for approval. In other words, the patient sought to defend himself against his feelings of inferiority (basic anxiety) by the compulsive need for perfection and the compulsive need for approval. Both these compulsive needs were frustrated when his employer said "You are no good around here, you do less work than a man of 70." These compulsions supported the diseased personality. When they were frustrated, the personality collapsed, and the psychosis ensued.

For five months, the patient continued to experience auditory and visual hallucinations of derogatory content. He remained completely convinced that all the other patients on the ward were conspiring together against him and that they called him names in order to make him "nervous" and to annoy him.

In February of 1944, insight developed. In a few weeks, the seclusiveness and withdrawal dwindled and the episode terminated.

It seems evident that this episode was one of paranoid schizophrenia. The interesting feature of the case is that the early paranoid hallucinations were of simple (animal) type because of the toxic effect of alcohol. When alcohol was withdrawn, the classic schizophrenic symptomatology was unmasked.

SUMMARY

Delirium tremens appears to consist of three syndromes. The first is the common type. In it, the psychotic episode is so short that the hallucinations disappear before the patient recovers from the toxic effect of alcohol. These hallucinations may be simplified

in morphology because the cortex is drugged and selects the most readily available images. Rorschach evidence suggests that the most accessible forms are those of animals.

In the second type of delirium tremens, the psychotic episode outlasts the toxic effects of the imbibed alcohol. The first hallucinatory form displayed is, therefore, simplified; but the second type of hallucination reveals its true schizophrenic character. Cases in which the hallucinations change character during an episode of delirium tremens are rather rare. For this reason, two have been presented. In the third syndrome, the psychosis becomes chronic. Although the episode begins with typical animal hallucinations, these are replaced by the schizophrenic type; and the patient goes on to true schizophrenic deterioration. Such patients may be found in any large mental hospital.

In short, the three types of delirium tremens seem to represent acute, subacute, and chronic schizophrenic episodes.

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ELECTRIC SHOCK TREATMENT

Observations on 350 Cases

BY WELLINGTON W. REYNOLDS, M. D.

The benefits of electric shock therapy were accorded to the mentally ill in Rochester State Hospital beginning in August of 1942. Since that time, more than 5,000 individual treatments, comprising some 350 cases, have been administered by various members of the staff and are continuing at the rate of about 100 every week. Although this is admittedly a relatively small series, certain pertinent observations can be made with reference to procedure, dosage, results and methods of evaluation. The evolution of a satisfactory technique is a fairly simple matter, but the evaluation of results is far more complicated and is certainly subject to factors of time, circumstances and individual interpretation.

Methods developed since the early and somewhat timorous days to the present more stable period have followed the usual experiential growth. As a result of this experience, both in this hospital and in many others, the use of electric shock as a therapeutic procedure has come to be regarded as safe and apparently of some value. During the administration of a large number of individual treatments, variations in reaction, recovery and attitude have necessarily been observed. None of the problems that have arisen at Rochester have caused any particular concern on the part of the operator or the patient; and such minor occurrences will be gone into more fully under the subject of complications. Simplification of technique has progressed steadily and satisfactorily so that problems along this line are few. The greatest unknown quantity in the entire therapy is the proper scientific evaluation of the results; and this, doubtless, will remain uncertain and indefinite until clarified by the passage of considerable time.

PROCEDURE

The method and the routine followed in the administration of a convulsive charge of electricity to the mentally ill have changed to some extent at Rochester since inception of the therapy. The trend has been steadily toward simplification, thus saving a great

deal of time and energy and involving less risk to the patient as the techniques evolved.

In some hospitals, the shock machine is carried about the various wards and more or less brought to the patient; but, in this institution, it has been found more convenient to bring the patient to the shock machine. Thus a series of rooms called the shock clinic was established. This includes a dormitory containing about 20 beds, several small waiting rooms and a larger room in which the treatments are given. Patients are brought to the clinic in groups and treated accordingly so that sufficient beds are always available for those who are recovering. Formerly, one wooden table of the regulation size was used, but since this resulted in a considerable wait for the operator between patients, it was found more economical of time to use two tables both fitted with casters. Thus, while one patient is being treated in the shock room, another is being adjusted on the second table and can then be wheeled in as soon as the first patient leaves the room. Thus a continuous stream of patients is maintained and by this method 30 patients can be treated in about one and one-half hours. Immediately after the treatment, each patient is placed in bed and a wide canvas strap is tied across his chest and abdomen. Men and women are treated the same day but in different groups.

Initially, it was deemed advisable to restrain the patient's convulsive movements as much as possible. It would appear, however, that a certain freedom of movement results in no more complications and is less strenuous for the attendants. A thin mattress covers the wooden table and the patient's arms are pinioned at his sides by means of a folded sheet which envelops the chest and abdomen. A wide canvas strap restrains the knees but not too tightly. A small pillow is placed beneath the head. Formerly, two sandbags were placed, one on top of the other; beneath the lumbar curve. At present, a single sandbag weighing $16\frac{1}{2}$ pounds is being used and seems to work just as well. Patients are dressed in underwear and bathrobes. Shoes are always worn to guard against fractures of the os calcis. Manual restraint is performed in the customary way by an attendant on each side. Downward pressure is made over the coracoclavicular area and the region of the anterior superior iliac spine but not too firmly. A padded tongue depressor is placed between the teeth.

DOSAGE

Experience gained as a result of a number of treatments, has more or less stabilized initial and subsequent dosages. Originally, very small doses were used, usually beginning at 90 volts for .1 second and for some time, rarely exceeding 135 volts at .2 second. These dosages apply for the machine being currently used. (Rahm Instruments, Inc., Model "R.")

Some later machines have built-in resistances which require higher voltages. Apparently a satisfactory margin of safety is present, since much larger dosages are now being used both initially and subsequently without any untoward symptoms. Patients are usually started on 120 volts at .1 second and sometimes on 135 volts at .1 second. One patient accidentally received an initial dose of 135 volts at .2 second, resulting in a satisfactory convulsion and without any complications. Many factors enter into the choice of time and voltage. Patients who are excited, overactive and dehydrated nearly always require larger initial and continued doses. Body build seems to have very little to do with it although perhaps the largest dosages are required in agitated and depressed middle-aged females and, particularly, in thin ones with some degree of arteriosclerosis. Often a person of this type will reach 135 volts at .2 second in a short time and then fail to convulse at that point. Often, men of tall and athletic build will react satisfactorily to comparatively small doses throughout treatment. Paraldehyde or other sedative medications given the night before, will frequently result in the necessity for a larger dose of electricity than would otherwise be the case. Patients who have received previous electric shock treatments always require larger doses during subsequent courses. The longer the interval between courses, the less this applies, but even those who have received no treatment for several months seem to have retained some of their resistance.

It is possible with the machine being currently used to test skin resistance and, thus, more accurately judge dosages, particularly the initial one. However, in practice this is rarely done, as the general appearance of the patient dictates rather closely the initial dose. It is possible to judge subsequent doses more accurately, but all of them are dependent on medication, dehydration, body build and general behavior. The latent period and the length and

severity of the convulsion, bear a more direct relationship. If the latent period, which is the time elapsing between the application of the current and the start of the convulsion, begins to lengthen to eight or 10 seconds, one can be quite sure that an increase in the voltage or perhaps the time, will be required the next time. All other things being equal, this increase should be about 10 volts, although a comparatively minor convulsion following a long latent period might indicate the necessity for a 20 or 30-volt increase or a change from 135 volts at .1 second to 120 volts at .2 second. It seems better to produce a satisfactory convulsion every time than to be too sparing with the voltage and have the treatment repeated. Repeats if necessary, are done after a lapse of 15 minutes or more, and no more than two attempted treatments are given in one day. The so-called double shock method has been used to some extent, but, in the experience of the author, has been less satisfactory than the repeat process. In the double shock method, the electrodes are left in place and the same dose applied after a suitable interval. In any case, it is best to avoid repeats, as more postconvulsive confusion results, and progress in general, seems slower and more erratic. Ice-tong electrodes seem to have definite advantages over the band type, primarily because of simplicity of application and removal.

The machine itself, has been found responsible for many missed convulsions, although these technical difficulties, have largely been recognized and corrected. The electrodes cause the most trouble. The wiring must be inspected periodically as the salt solution corrodes the contacts. The wire mesh pads must be replaced occasionally, as they tend to fray and to become impregnated with electrode jelly which hardens and reduces their conductivity. Cloth bags are tied over the mesh electrodes and moistened with salt solution. On one occasion, such a moist bag came in contact with the metal of the electrode handle, and the operator received a rude jolt when he touched a nearby radiator.

The record papers are also a part of the conduction system and cannot be used indefinitely. In Rochester, separate record sheets are used to record each treatment. The surge current recorder may be left out of the circuit entirely, but it seems better to have an observable graphic record of each treatment. It is not neces-

sary to reduce the voltage to zero between treatments. Occasionally the metal cover on the surge current recorder becomes depressed and a short circuit results which can be felt by the operator when he touches the cover. Condensers also become inefficient after a time and must be replaced. If the condensers are functioning satisfactorily, it is unnecessary to wait 30 seconds to apply the current after the machine has been set in operation. A wait of 10 or 15 seconds is usually sufficient. Factors such as the weather, the time of day and what not have been considered instrumental in the production of missed convulsions, but the skill and experience of the operator tend to eliminate these apparent extraneous influences.

Whereas the presence of bobby pins and damp hair, were formerly considered a contraindication, these seem to be more or less unimportant. Patients are refused the noon meal just preceding the shock treatment but many who have eaten all or part of their lunches, have been treated without any untoward effects. They must be watched more carefully during recovery for possible regurgitation and aspiration.

It is important to the patient to be able to maintain a calm and cheerful attitude toward the treatment. Since a retrograde amnesia, extending to two or three minutes before the application of the current, exists, this attitude is the usual one. In addition, the shock clinic atmosphere is made as cheerful and as "nonscientific" as possible to allay the perfectly natural fear that exists of electricity in general.

THE CONVULSION

The convulsion follows along conventional lines resembling in many respects an epileptic grand mal, although there are many individual variations. The length and severity vary to some extent with the dosage. If a convulsion occurs after a long latent period, it is usually a severe one and is followed by respiratory delay and considerable cyanosis. Thus, it is better not to produce this type of convulsion; and this variety usually will not occur if the dose is sufficient. The duration of the average convulsion is about 30 seconds. Some patients convulse longer and more violently in each case, regardless of dosage. Some patients assume a position of

opisthotonos either immediately or following the tonic phase and maintain this position throughout. Others assume an extended position and convulse in more of a continued tonic fashion. The pre-convulsive cry is inconstant and variable. Patients receiving sub-convulsive doses will frequently seem completely integrated for brief periods.

The pupils dilate widely in most cases as soon as the current is applied, although this phenomenon is also dependent on medication, psychosis and individual variation. The well-known mydriasis of the catatonic dementia præcox case remains more or less constant. As the convulsion ends and recovery begins, the pupils contract to normal diameter, and this is a good indication of beginning return to consciousness. Subconjunctival injection is frequently seen and clears quickly during recovery. Rarely, a frank subconjunctival hemorrhage occurs.

The patient is usually urged to take several deep breaths to obtain maximum oxygenation previous to the convulsion, although many are uncooperative; and failure to carry this procedure out does not necessarily mean a delayed recovery. It is primarily beneficial in giving the patient something to do and thus allaying anxiety just previous to the application of the current.

As soon as the last convulsive movement occurs, the patient is raised to a partial sitting position, the sandbag is removed and a large pillow placed under the patient's head. The operator then straightens the trachea by placing a hand behind the neck and holding the head in extended position by a firm grip on the hair with the other hand. At times, delayed respiration may be initiated by pressure with the thumb over the tip of the mastoid process, which starts a painful stimulus. Often, blowing against the face is sufficient to start respiration. In general, however, breathing begins spontaneously without any special stimuli. Edentulous patients will sometimes flap the upper lip against the nose in such a way that air cannot enter.

COMPLICATIONS

Complications resulting from the 5,000 individual treatments that have been given to date in Rochester State Hospital have been negligible. The most frequent, and probably the most easily avoid-

able, are dislocations of the mandible. In this particular series, 138 mandibular dislocations have occurred, usually of the unilateral anterior type. These are easily reduced after the convulsion has ended, either by gentle upward pressure on the jaw or by placing the thumb inside the mouth at the angle of the jaw and reducing the dislocation by means of downward and backward pressure. No irreducible cases have been encountered. Prevention of dislocations is based primarily on quick action by the nurse at the patient's head, who must be quick to restrain the extension of the jaw as soon as the electrodes are removed. Some patients extend widely and immediately and considerable pressure must be used to guard against overextension. Patients are usually unaware after recovery of having had dislocated jaws, even in recurrent cases.

Slight hemorrhage from the gums occurs in those who are in need of dental care. This occurs more frequently now that institutional dental facilities are limited.

As indicated in the table, only one fracture has occurred to date. This has been previously reported in the literature.* Unusual and persistent back pain has occurred in only three cases. In one case, a stretching of the brachial plexus, apparently due to an overzealous attendant, resulted in a temporary partial paralysis of the left arm. Patients formerly considered to have too high convulsive thresholds, can usually be convulsed satisfactorily if enough current is used. Prolonged apnea occurred in eight cases; and, if persistent, this is a contraindication to further treatment. Confusion is regarded as a complication only in cases showing markedly delayed recoveries. In one case, a secondary convulsion occurred during recovery.

Existing physical defects which formerly were considered as contraindications to treatment are no longer regarded as such. Heart disease, if well compensated, introduces no barrier. Valvular and myocardial defects, if not too severe, are not unfavorably influenced under careful treatment. In such cases, postconvulsive cyanosis is more prolonged and more extreme; and comparatively mild convulsions should be selected. Moderate hypertension, arteriosclerosis and nonincapacitating degrees of glomerulonephritis can also be treated satisfactorily. Hernias, if easily reducible, are

*PSYCHIAT. QUART., 18:2, April, 1944.

ELECTRIC SHOCK TREATMENT OF MORE THAN 300 PATIENTS AT ROCHESTER STATE HOSPITAL

Diagnosis	Sex	Average age	Committed	Voluntary	Average duration of illness (mos.)	Previous attacks (pts.)	Previous treatments (pts.)	Complications										Out of the Hospital				Hospital residence (mos.)	Control group (mos.)	Average treatments	
								High threshold	Dislocated jaw	Back pain	Brachial plexus stretched	Fracture	Apnea	Confusion	Secondary convulsion	Recurrent hernia	Transferred	Convalescent status	Discharged						Died
																			Improved	Much improved	Recovered				
Dementia praecox, catatonic	M	26.7	25	3	36	4	6		3				2	7	1	3	1	1	1	8.1	57.8	18			
	F	27.1	45	2	36	6	14		6				2	14	1	5	2			6.1	44.5	22			
Dementia praecox, hebephrenic	M	25.8	15	2	50	1	5		1		1			3		3	1	1	1	8.9	69.2	20			
	F	29.6	31	1	64	6	9	1	5				1	10	1	1	1			6.7	90.8	21			
Dementia praecox, paranoid	M	40.8	38	1	48	3	6	1	1	1			2	2	10	3	3	1	2	6.9	62.4	21			
	F	39.6	39	2	63	2	9	1	3				3	10	2	3	2			6.9	65.1	23			
Manic-depressive, manic	M	60	1		3	5																15			
	F	33.3	18		20	12	5	3	1				10	10		2	3			21.0	38.0	14			
Manic-depressive, depressed	M	51	2	4	7	5								1	1	2	2			3.1	14.0	12			
	F	38.1	11	6	16	12	2		1	1			2	2		3	5			12.3	19.7	12			
Manic-depressed, mixed	M																								
	F	48.1	11	5	168	11	1				1		6	6		4	1	14	7.2						
Manic-depressive, circular	M																								
	F	48.2	6	1	74	5	2						3	3	2			1	1	8.4	67.8	10			
Involutional melancholia	M	56.9	12	3	8			1	1				10	10				1	1	1	2.8	44.8	12		
Involutional paranoid	F	51.5	28	3	10	1	2	6	6				1	8	1	3	7	1	3	1	6.5	55.0	15		
	M	48.1	4	8										1	1	1				1	4.9		12		
	F	53.1	13	38			1	3					3	3		2	1	1	1	14.9		15			
Paranoid condition	M	48	2	2				1					1	1						4.2		10			
	F	49	1	180																		23			
Psychoneuroses	M	34.1	1	1	66								1	1						9.8		16			
	F	32.8	6	4	28	4		2					7	7		1				12.2	15.0	18			

not contraindications. Patients with potential hernias should never be treated unless relatives are advised of the possibility of actual herniation occurring.

Recovery from the convulsion usually proceeds without incident. The patient is allowed to leave the shock room as soon as breathing is well established. Rarely is it necessary to institute any type of artificial respiration or to use metrazol, caffeine or other stimulants. Occasionally with patients whose respirations are extremely shallow, additional aeration may be obtained by light pressure on the sternum during each expiration. After being placed in bed, return to consciousness develops gradually and most patients are able to be up and returned to the ward in 30 to 45 minutes. An expected degree of confusion persists for two or three hours but this is slight and requires no special treatment or supervision.

Postconvulsive excitement in the author's experience has been too rare and too mild to be regarded as a significant complication. It is most frequent during the acute phases of the psychosis regardless of diagnosis although some patients are excited and restless throughout the entire course. In such cases, the patient is placed in a protection sheet before much restlessness begins. These patients take longer to quiet down but are usually able to return to the ward in an hour's time. Patients with minor degrees of restlessness are restrained by means of a sheet twisted to resemble a rope and tied over and under the ankles and fastened to the foot of the bed. Patients already in camisoles should have their arms released previous to treatment.

The persistence of confusion varies considerably from case to case and is largely dependent on the treatment intervals. Formerly two treatments weekly were considered advisable but for some time, all patients at Rochester State Hospital have been treated three times weekly. This regime has to some extent increased and maintained the confusion, which is evident particularly in memory loss for recent events. Patients seem to be more amused than alarmed by this circumstance. Normally, the loss of memory clears completely in three to six weeks. This, however, is subject to considerable variation and some patients seem to suffer little or no memory loss and clear quickly from any that exists. A few have complained of slight memory loss, excluding the amnesia

for the acute phase of the psychosis, for as long as six months thereafter but this has been most prominent in cases having pre-psychotic organic defects such as arteriosclerosis and myocarditis. Patients requiring a larger number of treatments will usually remain confused for a longer period of time and have more persistent memory loss.

In general, patients with purely affective psychoses receive 10 treatments, and schizoid types 20 or more. However, this is subject to considerable variation and depends on many factors, including physical condition, duration of psychosis, type of psychosis, relapses, etc. Probably the simplest subject to judge in this respect is the straightforward case of involutinal melancholia where, unless physical condition interferes, good progress is usually persistent, rarely requiring more than 10 successful treatments. Any patient having a paranoid element in his psychosis, will need a larger number of treatments. Thus, patients with involutinal melancholia receive 10 treatments as a rule and involutinal paranoid patients 15 treatments.

In many schizophrenics and in some affective types, improvement begins almost from the first and proceeds to a point about half way through treatment, at which time the patient may be nearly symptom-free. The temptation to stop treatment at this point should be resisted, because in nearly all such cases a significant relapse will occur in a week or two. Treatment should be continued to include a full course even if the patient seems to be well enough to warrant discontinuance.

Some cases, particularly schizophrenics, will show evidences of "slipping" some two or three weeks after completion of the course. In these instances, it seems worth while to give immediately a few additional treatments, usually four or five, and often the patient will remain well thereafter. It is important in these cases to watch carefully for the first indication of disintegration and to begin treatment immediately. One patient (dementia præcox, catatonic) has been treated at intervals for a period of two years and seems to require four or five treatments about every six weeks. Under this régime, she remains comparatively symptom-free. It is questionable however, in such cases whether more harm than good is being done. Perhaps if the patient were allowed to work out her

own salvation by means of delusional expression, she would eventually become satisfactorily integrated. On the other hand, marked and irreversible deterioration might be expected in the absence of treatment.

RESULTS

The therapeutic benefits of electric shock treatment, as well as all forms of "shock" treatment are indeed a moot point. The factors that enter into the proper evaluation of the results are legion and are so indefinite and nebulous that only general estimations are valid. In an effort to adopt one definite indication of improvement or cure, the fact of parole or convalescent status has been used as a criterion. In State hospitals, this is admittedly a factor highly dependent on numerous varying circumstances, but must be used because nothing better is available. Patients leave State hospitals for various and sundry reasons. Even assuming that the ward physicians are ever alert to the advisability of convalescent care, many eligible patients are not brought to the attention of the clinical directors. Perhaps they have no places to go, no interested friends or relatives, and family care placement is not available or advisable. Perhaps they have physical problems that are better cared for in the institution. At the present time, relatives are less able to supervise convalescents because of almost universal employment or other occupation. Disinterested families are rather a common situation, and they produce a marked effect on convalescent care rates in general.

The attitude of the clinical director toward convalescence also reflects in the convalescent rate to a considerable extent. One clinical director might be quite sanguine about the adjustability of a certain patient whereas another might not share his enthusiasm in the least. The entire subject is open to individual interpretation and has significant bearing on convalescent status rates. Elopements, transfers, deaths, readmissions, discharges, poor adjustments on convalescent care, spontaneous recovery estimations are a few of the many operative factors. Probably no valid conclusions can be drawn in any case without the lapse of a considerable time interval.

Previous treatment, either with insulin or metrazol, may be significant, although to what extent is problematical. The duration of the psychosis, presumed genetic factors if any, type and severity of psychosis, physical concomitants, reattainment of prepsychotic levels plus increments of normal growth and many other factors complicate the picture considerably.

The type of certification has a definite bearing on hospital releases. Voluntary patients are obviously more likely to exercise their prerogatives than those regularly certified are to leave. The latter are more dependent on the attitude of the clinical director and the medical staff.

In addition to this, the almost total lack of suitable controls is certainly operative. To select exactly parallel cases for nontreatment controls is obviously impossible, and to deprive any suitable case of the possible benefits of shock treatment seems inadvisable. In an effort to make a comparison of some sort, the author recorded total time spent in the hospital by members of a control group and compared this with the hospitalization period of treated cases. This comparison is given in months in the table. These control cases were taken as received, beginning in September of 1931 and ending in December of 1936. None of these patients received shock treatments of any sort. They were classified according to diagnosis; and equal numbers of controls and treated patients were selected. Average time spent in the hospital was then figured for each diagnostic category. This included the time prior to death in some cases and the total time to the present for those remaining in the institution. The resultant differences are obviously marked; but, again, many factors enter into the picture, and the figures can only be regarded as approximate.

Psychotherapy in conjunction with "shock" treatment also has considerable influence on improvement and recovery. Nevertheless, in spite of the vast sum of unknown factors in connection with the treatment, electric shock seems to be of some benefit to the mentally ill. Only time however, has the complete answer.

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EDITORIAL COMMENT

"WHEN LILACS LAST IN THE DOOR-YARD BLOOM'D"

Coffin that passes through lanes and streets,
Through day and night, with the great cloud darkening the land,
.....
With the waiting depot . . . and the sombre faces,
With dirges through the night, . . .
. . . coffin that slowly passes.

—Whitman.

In the days "when lilacs last in the door-yard bloom'd," we have mourned another passing. On the fourteenth of April, 1865, John Wilkes Booth, smoking pistol in hand, leaped to the stage of the lamp-lit Ford's Theater and, stumbling, shouted, "*Sic semper tyrannis!*" On the fourteenth of April, 1945, a dazed nation heard, over thousands of leagues through the air, the voices of men choke and break as they sought to tell how another war president passed to the slow beat of the muffled drums through the solemn streets of Washington. In April of 1865, a grieving and bitter people could form no just estimate of Abraham Lincoln. We have said, in editorial comment in this place in the past, that we believe it is an unfortunate influence on the whole which Walt Whitman has had on the American people; but it was Whitman who found the noble words in which to tell that the hearts of a nation were in a "coffin that slowly passes." So today, we believe they are wise who have expressed their own and America's sorrow and have left the task of a just estimate of the man and his works largely to the historians of the future, recording for the tablets of today such words as those of the Washington radio announcer, bursting out as his voice broke with, "when your idol's dead . . ." and going off the air, or of the Utica taxicab driver, "Lady, I didn't hear what you said, I was thinking of Mr. Roosevelt"—as a coffin was slowly passing.

But it is not too early to think of some of the principles we hope those historians of the future will observe in attempting to arrive at a just estimate of Franklin Delano Roosevelt. When heroes die, the weaving of legends begins. So it was with Lincoln, with Washington, with Cromwell; and so it was when Hector fell before Achilles' spear and when the daggers struck down Caesar. Thus there will be a multitude of Roosevelt legends, more perhaps than about any man before, for the developments of war

have brought it about that never before in the history of the world have so many persons been affected by the death of a single man; and report or rumor of this man has probably reached more persons than ever lived in this world at any time before. But today we are better equipped, through widespread literacy, through the moving picture projector, through the mechanical typesetting machine and the printing press, through the radio, and above all through greater knowledge of humanity and the human mind, to distinguish truth from legend than mankind ever was in previous ages when legends were born.

These notations are based thus far on the dramatic circumstances of Roosevelt's later years and of his death, on the fact of those years' recurrent crises, nationally and internationally, socially, economically and politically, and on his tenure, at the unexpected end, of a position of unprecedented responsibility and power. They take into account, too, mankind's general conformity with the adage to say nothing but good of the dead, and the fact that the vast majority of Roosevelt's domestic political opponents have, without reservation, expressed sincere sorrow at his passing and deep regret at the loss of the nation's leader as the world conflict approached its climax. Such observations also necessarily note the tendency of families, groups or peoples to make much of their own, to see their own outstanding members as the foremost in personal achievement, political eminence or world affairs. One hopes that the writers and research workers who will some day interpret, for our grandchildren and great-grandchildren, our nation as it is today will remember these matters.

This suggestion is not advocacy of any debasing or "debunking" process. It is, in brief summary of essential points, a discussion of the fact that we have at hand the best opportunity history has ever afforded for genuine understanding, for true insight, into the phenomena of a world figure and his origins, of a great man and what created him, of a leader and his nation, his world and his times. In the matter of documentation, Roosevelt's career is better covered than that of any statesman of whom we are aware in recent or remote ages. We not only have a voluminous collection of his writings, his interviews, his photographs, his confidential documents—many comprised in material he himself preserved and gave to the nation—but, through the modern miracles of the moving picture and the sound recorder, we may still see his face, note his characteristic gestures, watch his actions and hear his voice; and so may our children and our children's children and grandchildren. And with this, and partly through the same instrumentalities, we may see him against a background of his contemporaries, great and simple, his political supporters and opponents, his friends and enemies, his great allies and antagonists abroad,

a far more complete picture of an era that we can possibly get of any period of history preceding that in which we have actually lived to hear things with our own ears and see things with our own eyes.

We repeat that we do not believe we can arrive at a just estimate of this leader or such leadership as his today. "Roosevelt" is a name double-shotted and fairly explosive with affect. It evokes too much emotion; Roosevelt was "our leader," or "the champion of the forgotten man," or, conversely, "that demagogue," or "the Great Brain," or "that man in the White House." To many others, less stirred to love or hate by his personality and numbering both supporters and political adversaries, Roosevelt, by virtue of his office and his long tenure of it, and by virtue of his stature as reflected against the rest of the world, had become a symbol of modern America. Such persons, too, cannot look back toward him without a fog of emotion, for symbols are not supposed to die; and those to whom Roosevelt was a symbol could hardly be more dazed and shocked by his death than if they had learned of the sudden death of the Star-Spangled Banner. These are all factors which our children may be able to assess better than we, and which we ourselves will understand better after another decade. But in the growth of the inevitable legends, they should not be forgotten.

Caesar appears to us as the soldier of genius, the model war reporter, the writer of Latin prose which has never been paralleled for terse, dramatic presentation, and the statesman who reorganized and revived the tottering structure of republican Rome. Few besides the specialist scholar recall his political and personal corruption, his consistent employment of treachery at home and abroad, his political and diplomatic double-dealing, and a private life so dissolute that it was a public scandal in the dissolute times which also produced Cataline. We have been even more tender of the repute of our own national heroes. Few recall of Washington that his profanity was notable in a century notable for profane men; few recall that his reputation with the ladies was of the shadiest; probably fewer recall that he was hated and vilified by numerous fellow-countrymen in a fashion seldom seen in America. So with Lincoln. We remember Southern scorn of him as a "turn-coat" because of his Kentucky birth, and much Southern hatred, based on misunderstanding of his aims and misinterpretation of his actions. But we usually fail to emphasize the scorn, hatred and jealousy of many in high places in the North; and we seldom recall certain hampering qualities of character, among them reliance on personal military ability he did not possess, with consequent overruling of his generals and prolonging of the Civil War. Few of us realize that his personality difficulties with "melancholia" approached a major psychosis; and it is al-

most never remarked that many of Lincoln's famous homespun stories are said to have been homespun out of barnyard material. Such heroes as he, of our own and other nations, tower out of history considerably less than human and considerably more than life size. Similar pictures of outstanding leaders used to be unavoidable; and in the last two centuries preceding ours they were further distorted by reflections of whatever was considered admirable in his own society by the historian of the time. There was deliberate, conscious attempt to deify Washington. There were elements of remorse in both North and South which encouraged embellishment of the character of Lincoln; and the South, under the heel of the carpetbaggers and the lash of the wavers of the bloody shirt, aided in magnifying the man who, they knew at the last, would have stood between the Southerners and their real enemies' vengeance.

We could never, of course, hope to view Washington and Lincoln and their times with the clarity with which we view our own. But we may possibly so equip, train and indoctrinate present and future historians that they can present to our grandchildren a view of Roosevelt and our times which should enable them to deal with much greater understanding with the men and problems of their own. If democracy is to survive, the sight of its workings, its faults, its failures and successes, its enemies and leaders, its trials and its triumphs, as shown in the times of Roosevelt, can be priceless material for study. If we can preserve that material and provide the beginnings of a proper historical attitude, we shall have done an important service for posterity.

We have such material and the beginnings of such an attitude now in relation to other aspects of the world scene. We probably have a considerably better perspective now, as a matter of fact, of Hitler and Germany than of Roosevelt and America. We cannot claim to know all the details of what makes Hitler tick, but we do know the chief factors behind him and behind his acceptance by the German people to lead them to destruction. We should hesitate to claim that we know half as much about Roosevelt's character makeup or half as much about the reasons the American people repeatedly elected him President; and this is not solely because we are too emotionally involved in the American scene or because we are so immersed in details we cannot see the general outlines. It is largely and principally because it is much easier to understand the dynamics of a psychosis, domination by a single pathological trend, than it is to comprehend the infinite complexities, the multiple checks and balances, of the normal mind. Thus, as we may understand paranoid patient Smith better than normal attendant Jones, we may comprehend paranoid Germany better than our own United States. It is also true that the main trends which first brought the

fall of France and then the rise of de Gaulle may be more readily apparent than those which turned American domestic policy from right toward the left and American foreign policy from isolationism to active participation in world affairs. And it is certainly true that the trends which led Great Britain to Munich and then to war, disaster and the saving ascendancy of Churchill are clearer to view than those which have controlled America. But, ignoring the vast tangle of forces beneath the surface of France, the outstanding events in that country since the war began have presented the bold outlines and the sweep of a classic Greek tragedy. And in Great Britain, with all its present shifting of social forces, the dynamics which brought about appeasement, war, fumbling, and finally a great war leader, arise from a national character structure which—whatever may be happening now—is but little changed as yet from that which has been well known to the world for generations.

We do not believe that today's America is so well understood, either by ourselves or anybody else. Colonial America was a comparatively simple society not greatly different from that of agricultural Eighteenth Century England. Civil War America was a nation fought over by two violently contrasting but still comparatively simple cultures. Our America, our democracy and its processes, our ways and reasons for choice of leaders and determination of domestic courses and foreign policy, all are of a complexity which could not have been imagined when the nation was mourning Lincoln 80 years ago today.

We suggest that in the life of the President just passed there are means to understand America, Americans and American democracy which can be of tremendous worth to our children and grandchildren, even perhaps in decades to come to ourselves, if we have the wit and the understanding to make use of them. These are endless questions to be answered. What qualities in Roosevelt and ourselves made him the nation's leader in an uneasy and distressful peace and during a desperate war? Was one of them "anything for a change" from administrative and economic failure, or was it based on glittering promises? But Townsend promised more; Huey Long promised more; if memory serves correctly even Norman Thomas promised more, all offered greater changes than Roosevelt. Was one factor his radio influence? Then why not Father Coughlin? Was the reason for Roosevelt's triumphs sympathy for distressed humanity? But he, with little background in the relief of distress, defeated, in his first campaign for the Presidency, President Herbert Hoover, a man who had not only demonstrated sympathy by his works but who had had more practical experience in the relief field than any man on earth. Was the secret of Roosevelt's success public confidence in his administrative ability and his

economic understanding? But others had demonstrated equal possession of both qualities—though it is perhaps not pertinent to mention Al Smith here, since his defeat for the Presidency had little bearing on the question of his ability. Was it Roosevelt's skill as a politician? There are other men in both major parties of great political skill. Was it his foreign policy? But both Wilkie and Dewey announced foreign policy views similar to his. Was it the backing of big city political machines or of organized labor? But some of the big city machines opposed him for nomination and election; others were lukewarm in support; organized labor has never voted as a unit, and John L. Lewis has been a recent bitter opponent. Was Roosevelt's career due in part to greater popular distrust of one party than of the other? But neither party has voted consistently as a unit in Congress in recent years. Or was there some quality of hopefulness and vision in Roosevelt which appealed to American ideals, or were there unconscious personality factors which repeatedly aroused response in similar unconscious factors in the majority of voting Americans? Frankly, we do not set ourselves up here as knowing the answer either to this or to any of the preceding questions. But we think the answers to all of them and to many others can be immensely valuable to the future American democracy if and when clues to them are found.

Our particular interest here is in the hope that our own specialty, joining with the other social sciences, can contribute to the future findings. We would not suggest rewriting past history or writing present and future history from the current psychiatric point of view, although there is some promise that from psychiatric work there will some day be developed an outlook and a philosophy which will be essential for the understanding of all human affairs. Even today, we doubt if we could understand Hitler and Nazi Germany at all if it were not for the light cast by psychiatry. The analysis of German paranoid trends and of German need for masochistic and sadistic outlets by such writers as Richard H. Brickner and Erich Fromm, both dynamic psychologists, has probably contributed as much or more to American comprehension of why Germany, why the Nazis and why Hitler than the sum of our information from all other sources combined.

We hope that when we ourselves can be interpreted to our children and grandchildren, perhaps—a decade hence—even to ourselves, these techniques can be used to good purpose. We have long since passed the time of interpretation of history in terms of supermen or even of Carlyle's heroes. We know that the answer to whether the hero makes history or history makes the hero is "both" and that that is only the bare beginning of the answer. But we do know that knowledge of ourselves and our society, knowledge of the rules of how to run our democracy, should be gained by study of the interaction of ourselves and our great leaders.

For such a study as modern science has made possible, our leaders must remain life size, not expanded by legend. We must study their human characteristics and weaknesses, as well as their great qualities. What bearing has it on the larger problems of democracy that we elected and re-elected a President who was an extremely practical politician, who compromised with what many considered to be principle nationally and internationally? Were Roosevelt's stubborn clinging to one friend in the face of political disadvantage and his ruthless disposal of others when confronted with political realities actions due to factors common to all of us? Will leaders most like ourselves continue to act similarly? Or were his popularity and leadership due to entirely different sources and created in spite of, not because of, these activities? Were his human foibles something we disregarded, something we deplored or accepted, or something actually desirable for democratic leaders—in the way Lincoln suggested prescribing Grant's whiskey for the other Union generals?

The more nearly we can come to giving to our children the answers to these and a multitude of similar questions, the better will their democracy be likely to work. Dynamic psychology can be of at least equal service to the other sciences here. Its share of the problem is virtually untouched. We actually know little more of what characteristics make great leaders and constitute outstanding leadership in a society like ours than men knew in the days when they held "funeral for Hector tamer of horses" on the plains of windy Troy.

BOOK REVIEWS

Freud's Contribution to Psychiatry. By A. A. BRILL, Ph.B., M. D. 244 pages. Cloth. W. W. Norton & Company, Inc. New York. 1944. Price \$2.75.

One would naturally expect a presentation from the pen of A. A. Brill to touch upon the subject of psychoanalysis which is his life work. He was one of the few privileged to live in close contact with Freud when psychoanalysis was taking form and direction. Provided as Brill was with a substantial background of psychiatry which others of Freud's entourage lacked, he was able to observe with a clearer and deeper understanding the steps by which Freud reached his conclusions, and no doubt Brill's discussions with him must have guided the latter when psychiatric situations presented themselves for study.

Brill's extreme modesty does not let him credit himself with any of this. These remarks are those of the reviewer who is familiar with the circumstances under which psychoanalysis was introduced in America.

The reviewer clearly remembers how—when he was still a young man and was puzzled and confused in attempting to reach some satisfactory conclusion as to why the patient's delusions and hallucinations took certain forms and not others—he came upon the classical dream analysis of Brill's Wall Street Girl. Suddenly a ray of light illumined a portion of the field and showed him the direction to be pursued. He remembers with what relief and satisfaction he set about to rearrange and review his previous faulty conclusions, based upon the current writings of that day. No doubt this same experience has been the lot of many men.

This small volume is packed full of observations and examples and is well worth anyone's time to consider and study, for it is an epitome of mental science as it is seen today and as it came to be what it is today.

Psychosomatic Medicine. Proceedings of the Second Brief Psychotherapy Council at Chicago, Ill. Under the auspices of the Institute for Psychoanalysis. 64 pages. Paper. Chicago. 1944. Price 75 cents.

This pamphlet consists of several papers presented in a gathering in Chicago which constituted a symposium in the field of psychotherapy. While the meeting was held and the papers are published under the auspices of the Chicago Institute for Psychoanalysis, the latter wishes it understood that the views are those of the individual authors and may or may not represent the attitude of the Institute itself.

The object of the meeting, expressed by Franz Alexander in welcoming the members to the Institute was: "to discuss a vital and pressing problem of modern medicine—the problem of rational and economic psychotherapy." There were papers presented by Thomas M. French who discusses brief psychotherapy in bronchial asthma, by Edward Weiss of Philadelphia on the gastro-intestinal tract, by George E. Daniels on brief psychotherapy and diabetes mellitus. Other papers touch other aspects of brief psychotherapy.

The little brochure will be of interest to all students and practitioners of psychotherapy.

Manual of Military Neuropsychiatry. Edited by Harry C. Solomon, and Paul I. Yakovlev, M. D., with the collaboration of 11 doctors. 764 pages, with index. Cloth. W. B. Saunders Company. Philadelphia and London. 1944. Price \$6.00.

It is one of the many tragedies of war that useful by-products, because they are associated with the unpleasantness of war, tend often to be soon forgotten. Particularly has this been true of military neurology and psychiatry where ideas and methods, painfully learned in the first World War, had to be almost as painfully relearned during the present conflict. A specific contributory reason for this may be that the best literature was not put into permanent book form. Another corollary reason is that military neurology and psychiatry lose interest for civilian psychiatrists during peacetime. Perhaps a third general reason is that the United States was not long engaged in the first great war.

There are a number of other reasons, general and specific, all attested to by the dearth of literature on military neurology and psychiatry at the start of the second World War. That this state of affairs is being adequately rectified is becoming increasingly evident. Several books on war psychiatry have recently been made available to the profession. ("Psychiatry and the War," edited by Frank J. Sladen, M. D., and "War Psychiatry," Proceedings of the Second Brief Psychotherapy Council of the Chicago Institute for Psychoanalysis were both reviewed in this *QUARTERLY* in October, 1944.) To these, and to the growing list of psychiatric books and bulletins restricted to military personnel, may be added Solomon and Yakovlev's "Manual of Military Neuropsychiatry."

The present manual fills a definite need since, so far as this reviewer knows, it is the only text *solely* devoted to American military neuropsychiatry. The material in the book represents the contributions of 45 psychiatrists and neurologists, many of them in the armed forces. The principal

editors, Drs. Solomon and Yakovlev, have had editorial assistance from 11 collaborating editors. The plan of the book was to include all the fundamentals of military neuropsychiatry from the examination of the inductee to the treatment and disposition of the neuropsychiatric casualty. To the credit of the book it can be stated that the plan has been ably executed.

The manual is an outgrowth of the "Seventh Postgraduate Seminar in Neurology and Psychiatry, including a Review Course in Military Neuropsychiatry" held at Waltham, Mass., in 1941-42. The original material has been revised and supplemented and brought up to date. The text is divided into six parts, each containing a number of topics. Part One is introductory and consists of two topics, one dealing with a résumé of neuropsychiatric experiences of the first World War and the other with the general organization of neuropsychiatry during the current war. The second part is concerned with induction. Screening at induction stations is thoroughly discussed including administration, and psychiatric and neurologic examinations. While the authors of these articles have been somewhat optimistic and perhaps idealistic in their discussion, neglecting certain reality factors which have militated against smooth operation in practice, yet they have succeeded in presenting an excellent and adequate picture of induction psychiatry. The third section is concerned with administration and disposition in all the armed services. This is one of the most needed sections for the military neuropsychiatrist, and it is regrettable that much pertinent data had to be omitted for reasons of military security. It is also regrettable that since administration and disposition are constantly changing, the pattern cannot be frozen. This section makes one wish for a loose-leaf form providing for periodic revisions and convenient bringing up to date.

Part Four is devoted to clinical entities and comprises the bulk of the book. Of the 340 pages in this section, 142 pages are allotted to psychiatry and 198 pages to neurology. The material in this section is available in other, more formal, texts, since many of the clinical aspects of military neuropsychiatry are identical with civilian psychiatry and neurology. There is however a definite advantage for the medical officer (and perhaps for the civil practitioner as well), in having an authoritative compendium of neurology and psychiatry in the one book.

Prophylaxis and treatment are also stressed, and the 142 pages of Part Five are devoted to these important topics. Part Six makes up the remainder of the book. This section is a sort of "carry-all" for "Special Topics" which, although relevant, could not be conveniently fitted in elsewhere. These topics include: neuropsychiatric disorders in the tropics, torpedo casualties, flying hazards, and neuropsychiatric experiences of foreign armies. A chapter on cerebrospinal fluid follows, and one on electroen-

cephalography concludes the book. Both are highly pertinent and valuable.

The contributors, the editors, and the publisher are to be congratulated on this book. The size of the book is handy and the contents authoritative. Perhaps too little space has been given to group psychotherapy and the convalescent-and-reconditioning program, but the editors have anticipated this type of criticism. Revised editions will undoubtedly correct this lack. Among other things, the type is readable and the book well-indexed. There are a few minor typographical errors (e. g. on p. 137 "effect" is printed in place of "affect"), but on the whole the composition is equal to the contents. The manual is heartily recommended to all neurologists and psychiatrists, both military and civilian.

Psychology for the Returning Serviceman. Prepared by a committee of the National Research Council, Irvin L. Child and Marjorie Van de Water, editors. 243 pages with index, six illustrations (line drawings). Paper. The Infantry Journal and Penguin Books. Washington and New York. 1945. 25 cents.

This is the second distinguished contribution to mental hygiene made by the "Infantry Journal" and the National Research Council in collaboration since the start of the present war. "Psychology for the Fighting Man," a 25-cent Penguin book like the present one, was the first realistic, practical and really helpful work on its subject this particular reviewer has seen either in this or in the previous World War. The new publication is a natural and logical followup of this earlier contribution, intended for the men who are leaving the armed services—at present chiefly through disability discharges—and aimed toward promoting their readjustment to civilian life.

The United States started drafting men a year before Pearl Harbor. When demobilization really gets under way with the final collapse of Germany and the eventual conquest of Japan, hundreds of thousands of those discharged will have served in the armed forces five years or more, many from six to seven. With the possible exception of repeated enlistments in the Continental Army, this is the longest period in American history for which this country has asked citizens who are not professional soldiers or sailors to serve. To the youth drafted at 18 or 20, completion of his service may mean that he has spent from a fifth to a fourth of his life under arms. Considering that this fifth or fourth of a youthful lifetime represents highly important years, those that are commonly devoted to college and professional education, to the establishment of adult habits, the forming of adult ties, marrying or planning to marry, finding one's place in

business, industry or trade, in fact "settling down" or preparing to "settle down," and considering that many of our servicemen have spent those years unfitting themselves for civilian life through the aggressive aims and activities of military duty, it seems evident that guides on how to become good civilians are as greatly needed as were guides on how to become good soldiers when these men entered the army.

"Psychology for the Returning Serviceman" is intended to be such a guide, particularly toward good emotional and interpersonal adjustments, toward the building of healthy mental attitudes and the cultivation of sound bases for self-understanding by the discharged man and for his understanding of other people. This pocket-size book would appear to serve this purpose admirably. It discusses the individual problems of obtaining jobs, readjusting to parents and siblings, going out once more with American girls, learning the new skills industry has developed during the war, marrying and having families, and playing a part as a citizen and a member of society. There are brief, informative and useful notes on other matters of less general application: for example, on the possibly paranoid reaction of the service man who returns to a faithful wife after he himself has been unfaithful; on the special difficulties of the couple reunited after a brief furlough honeymoon; on the peculiar problems of adjustment of the returned prisoner of war; on the special difficulties of those with permanent physical handicaps; on the troubles of those with histories of psychiatric episodes in the service or with neurological or psychiatric disability discharges.

The editors of this volume had the collaboration and criticism of a distinguished group of scientific experts, psychiatrists, psychologists, sociologists and other members of the social sciences; and Professor Edwin G. Boring of Harvard and Colonel Joseph I. Greene, editor of the "Infantry Journal," share responsibility for its scientific and military accuracy. Since they have especially invited criticisms, they doubtless will receive many constructive suggestions from professional workers whose specific fields are touched upon in the book. From the psychiatric point of view, for example, it might be well to amplify or qualify the flat statement (page 197) that: "Something like half the people who go to civilian doctors' offices for treatment complain of illnesses which are NP troubles." Without further explanation, the reader is likely to receive this information with downright incredulity or—if he does believe it—interpret it in a fashion which is misleading. One presumes that many comments of this sort will be reviewed by the editors for possible revisions of future editions.

This reviewer feels that expansion of the material in the six-page chapter on "Social Conflict" would be a major improvement. The notes here

on the causes of group prejudices, fears, bigotries and suspicions are excellent; they could very well be expanded. The basic reason for the present war is the violent outburst of all these most undesirable potentialities of the group—in this case, the Germanic group and the Japanese group—on a world-wide scale. Although we have been fighting this sort of thing and have done our best to indoctrinate the men and women of our land, sea and air forces with the principles for which we are fighting and with detestation of the principles for which our enemies stand, there seems reason to fear group prejudices and group conflicts in our own country following demobilization. We fought the first World War for objectives and against enemies not altogether dissimilar to those of today; and our troops came home to a period of greatly exacerbated group clashes—negro-white riots in Chicago and elsewhere, anti-Semitism, anti-Catholicism, the infamous Ku Klux Klan and its even worse imitators; and, in the later years between the wars, possibly less open but equally dangerous efforts to set class against class, to pillory economic royalists, to witch-hunt reds, to frame secret plots of foul and Fascist violence. The fomentation of this sort of group hatred and suspicion did not end on Pearl Harbor's day of infamy. As sedition arrests and trials have demonstrated, many of the active promoters of domestic evil continued their work in secrecy; and certain politicians (in both major parties) continued to make use of them. And, in the international field, suspicious and distrust of our allies have been actively promoted by certain sections of the press—on the apparent grounds that while these peoples speak, eat, think and govern themselves differently than we do, they also want shares of the world's goods—and with an end other than the winning of the war to serve. These feelings are very likely indeed to be turned toward the promotion of social conflict once the war is won; and anything which can be done to inoculate the returning serviceman against this disease of the national social structure ought to be done. Adding to the present chapter some of the excellent material originally presented in "Psychology for the Fighting Man" might serve a good purpose here.

This reviewer would also suggest in what is intended to be a constructive spirit that a different title might promote greater sales of the present book and encourage more reading of it. "Psychology" is a formidable word. In a book addressed to the fighting soldier, it might not repel, for most men had heard of, and were interested in the principles of, Nazi psychological warfare; but psychology to many a man—once he is not a soldier but an ex-soldier—may be a lot of high-faluting, theoretical nonsense peddled by impractical do-gooders, and he doesn't want any of it. An attractive descriptive title for a book of this sort is no easy thing to devise; such ex-

pressions as "readjustment" or "mental hygiene" would be far worse than "psychology;" neither should the volume's content be misrepresented by avoidance of the issue. But could not the present title, even possibly retaining the word "psychology," be used as a descriptive subtitle, with a more arresting and (Beg pardon) psychologically sounder main title? There is no intent to be flippant or sardonic in suggesting that something like "Home Boys, Home . . ." might be both attention-compelling and appropriate if the services still sing that somewhat obscene ditty. Or some entirely new song, slogan or wisecrack might suggest something better.

Marihuana Problems in the City of New York. Sociological, Medical, Psychological and Pharmacological Studies. By the Mayor's Committee on Marihuana, George B. Wallace, M. D., Chairman. xii and 220 pages. With 53 tables and seven figures. Cloth. The Jacques Cattell Press. Lancaster, Penn. 1944. Price \$2.50.

The English word "assassin" is derived from the Arabic *hashshash*, which is hashish, and in another tongue is known as marihuana, for lack of which *La Cucaracha*—as is related in a famous and ribald ditty—found himself unable to march. While it seems to have been used in China as an anesthetic two thousand years ago, its popular character in all recent centuries has been that of a drug of decided ill repute.

The Crusaders were well-informed of the procedure of the Old Man of the Mountains, who stupefied his followers with hashish before introducing them to the delights of wine, women and song in his hidden mountain valley as incontrovertible proof that he held the keys to open or close the gates of the Prophet's paradise to come. But the knights of the Cross embroidered the story when they returned to Europe, relating many an incident of superhuman bravery and sacrifice performed by Hassan's emissaries, and reporting them not as due to the promise of immortal bliss of his secret pseudo-paradise but as inspired by direct dosage with the drug, which his followers used habitually. In the more sophisticated centers of the Moslem world, the use of the hemp seems to have been a somewhat less polite vice than homosexuality or wine-drinking. Scheherazade, in "The Thousand and One Nights," reports many a tale of the hashish-eaters, their exploits ranging from disgraceful intoxication in the public baths to the assumption of a sultan's throne by a "geneologist" who, while under the influence of *bhang*, persuaded the incumbent to abdicate by proving that instead of being a king's son he was descended illegitimately from a long line of pastry cooks.

Across the world in our own time, half a millenium later, marihuana had become the vice of the dispossessed of Mexico, the disreputable indulgence

of the peon, the cheap madness which was supposed to have inspired Pancho Villa's "seum" to arson, torture, rape and murder, as they marched to pillage, celebrating the hemp-smoking coceroach in bawdy song. Today, a generation later, the drug is the center of a problem in New York City. Gangsters are reported to be growing, selling and smoking it. There are rumors of systematic attempts to exploit its sale among school children by luring them into addiction. Press and pulpit are exercised. The police face unprecedented difficulties, because marihuana is not imported, and its processing is not difficult. It can grow, undetected by the ignorant, in the midst of the ragweed on any vacant lot, and its preparation involves little more than a place to dry it and a package of cigarette papers. There is reason to believe, in fact, that hundreds of acres of New York City's vacant lots are marihuana plantations. Preventing its cultivation and use—with what has been pictured as the consequent horrible debauching of huge numbers of the population—would seem as difficult as to prohibit the growing of the dandelion and its gathering for cookery by the addicts of greens among the population.

In this situation, Mayor LaGuardia, who had learned something about marihuana in the Canal Zone many years before, appointed a committee to make a thorough scientific investigation and report on hemp and its uses. That committee has just published its conclusions—and they are such as to make one wonder how and why all the tales of the horrible effects of this drug have persisted through the centuries.

Hashish, it seems, is not the big, bad weed it has been supposed to be. It may not be anything to recommend as a pot herb for the kitchen garden; but as compared to the coca shrub or the opium poppy, *cannabis* appears to be a plant of shining innocence. Since nearly everybody has been wrong for centuries about this, it should be stated that the facts seem established on the highest scientific authority. Mayor LaGuardia, in 1938, had made known his wish that "some impartial body such as The New York Academy of Medicine" make a survey of the marihuana problem in New York City. The academy's committee on public health relations promptly appointed a subcommittee which reviewed the literature and recommended a formal sociological and clinical study. In January, 1939, the mayor appointed the members of this subcommittee to make the recommended study, with four additional ex-officio members. The committee as thus constituted and as responsible for the report here reviewed consisted of George B. Wallace, M. D., chairman, E. H. L. Corwin, Ph.D., secretary, McKeen Cattell, M. D., Leon H. Cornwall, M. D., Robert F. Loeb, M. D., Currier McEwen, M. D., Bernard S. Oppenheimer, M. D., Charles Diller Ryan, M. D., and Dudley D. Schoenfeld, M. D., the Academy of Medicine sub-

committee members who first surveyed the problem; and, as ex-officio members, Peter F. Amoroso, M. D., first as the deputy commissioner and later as the city's commissioner of correction; Karl M. Bowman, M. D., then director of the psychiatric division of the city's department of hospitals; S. S. Goldwater, M. D., replaced later by Willard C. Rappleye, M. D., as commissioners of the department of hospitals; and John L. Rice, M. D., as the city's health commissioner.

Dr. Schoenfeld conducted the sociological study, using six policemen who were specially trained for the work. Dr. Bowman directed the medical and psychiatric part of the clinical study; and David Wechsler, Ph. D., directed the psychological part. Samuel Allentuck, M. D., psychiatrist, was in direct charge of the clinical procedures, assisted by Louis Gitzelter, M. D., and Frank Anker, M. D. Clinie psychologists included Robert S. Morrow, Ph.D., Florence Halpern, M. A., and Adolph G. Woltmann, M. A. An extensive pharmacological investigation was done in the department of pharmacology of the Cornell Medical School by S. Loewe, M. D., with the collaboration of Dr. W. Modell. The entire work was financed to the extent of \$22,500 by the Friedsam Foundation, the New York Foundation and the Commonwealth Fund. The sociological work included a painstaking review of court and police records and a thorough survey of the situation concerning the sale and use of marihuana throughout Manhattan, as well as a study of its users and the more readily observed effects of the drug on them. The clinical investigation included the giving of the drug, either in extract form by mouth or through marihuana cigarettes, to 77 volunteer subjects from among the city's prisoners who were studied under hospital conditions in groups of six to 10 for about a month at a time. They were subjected to exhaustive medical, psychiatric and psychological examinations and tests.

These impressive data are noted here because the mayor's committee's findings not only refute the charges brought by popular superstition, but the views of perhaps the majority of supposed authorities as well, for social investigators' and narcotic agents' reports present as colorful stories of the horrible results of marihuana consumption as can be found in folktale or fiction. Popular repute and sociological report have agreed that hashish or marihuana is a habit-forming drug to which persons become hopelessly addicted; that it produces extreme intoxication during which the user is dangerous to himself and others; that it is a powerful stimulant of sexual appetites; that it predisposes toward habituation to other drugs; that it is an important causative factor of juvenile delinquency and major crime, particularly sex crime; that it causes personality deterioration and psychosis; and that it has a multitude of other calamitous effects. Because of its sup-

posed rôle in underworld homicides, marihuana has even been called the "killer drug" in criminologist literature.

Persons interested in precisely what marihuana does or does not do are hereby referred to the book. Sufficient for this review is the note that while the mayor's committee does not formally pronounce it innocent of all misbehavior, the verdict is "not guilty," or at least "not proven," on every count listed. Marihuana is found not to be habit-forming; it does not produce "true" addiction; its discontinuance causes no withdrawal symptoms. The intoxication of marihuana appears to be accompanied by pleasant sensations; and the users are not made dangerous or quarrelsome. If there is any stimulation of sexual appetites at all, which appears doubtful, this is not accompanied by overt actions or expressions. There is no evidence of predisposition through use of marihuana toward habituation to other drugs. There appears to be no foundation for the charge that it is either used extensively by children or that it contributes in important fashion to juvenile delinquency or adult crime. There is no evidence that its use leads either to lasting mental or to physical deterioration. It appears to have no importance whatever as an etiological factor in underworld crime, at least in New York. The committee nowhere makes the following statement specifically; but it would appear to the reader that marihuana intoxication is not incomparable to that produced by alcohol, that marihuana lacks some of alcohol's most undesirable features, and that smoking of hemp is on the whole a somewhat less serious sociological and personal problem than is the abuse of alcohol.

"Marihuana Problems" is foundation material of the greatest importance for psychiatric workers, sociologists and criminologists. Its influence eventually should be no less than revolutionary. For one thing, the medicinal uses of hemp may be greatly increased, as the scientific inquiry so far undertaken suggests that it may have valuable properties in treating genuine drug addiction to opium, cocaine and their derivatives and in relieving mild psychogenic depressions. This study will be continued, and it seems possible that marihuana—dropped from the United States Pharmacopeia 20 years ago—may eventually recover an important place as a therapeutic agent. As for present concrete results, Mayor LaGuardia expresses pleasure that "the sociological, psychological, and medical ills commonly attributed to marihuana have been exaggerated insofar as the City of New York is concerned," but announces that he will "continue to enforce the laws prohibiting the use of marihuana until and if complete findings may justify an amendment to existing laws."

For the students of social psychology, of superstitions and of old wives' tales, the question of where, how and why this comparatively innocuous

drug acquired its almost universal big, bad reputation might prove not only a fascinating subject for research but might well cast further light on the general problem of folk medicines, magic potions, poison and drugs and their traditional uses and abuses.

Alcoholics Are Sick People. By ROBERT V. SELIGER, M. D. 80 pages with glossary and notes, and list of author's publications. Cloth. Alcoholism Publications. Baltimore. 1945. Price \$2.00.

This monograph is a simple, factual summary of some of the more easily understood facts about the misuse of alcohol. It is designed for the use of the problem alcoholic himself, his relatives, friends or spiritual counselors. It might be called a primer on alcoholism. In it, Dr. Seliger, who is assistant visiting psychiatrist at the Johns Hopkins Hospital, has included his "Liquor Test," a set of 35 queries which has become something of a famous questionnaire since its first publication in "Your Life Magazine" five years ago; and he has added to this brief notes on what makes people alcoholic, on why alcoholism is a symptom of disease, on what to do about it, and on the reeducation of the abnormal drinker. Esther Loring Richards, M. D., associate psychiatrist at the Johns Hopkins Hospital; and Lawrence F. Woolley, M. D., clinical director of psychiatry at the Sheppard and Enoch Pratt Hospital, have contributed an introduction and foreword. Victoria Cranford, Rorschach analyst and psychotherapist at the Haarlem Lodge Sanatorium, Catonsville, Md., collaborated with Dr. Seliger in the writing; and the manuscript was edited by Harold S. Goodwin, day city editor of the "Baltimore Sun," a procedure which is probably responsible for the fact that this scientifically grounded treatise is thoroughly comprehensible by the layman.

This is an excellent little book. With a single reservation, it should help many immoderate drinkers and many more of their relatives. Parts of the chapter on "What Really Drives You to Drink" might be useful required reading for such relatives, for personality counselors, even for general medical practitioners; some of this material might well be taught in the schools. And the thesis of the little book, that the alcoholic is sick, not wicked or depraved, and that he is in need of help and treatment, not of shame and punishment, seems calculated to help both the victim of alcohol and the various victims of the victim.

The single reservation as to the helpfulness of this pocket volume concerns the flat statement, "If you have become a pathological drinker, you must never drink again," and the elaboration and argumentation which follow. This is, of course, perfectly orthodox psychiatric doctrine, probably subscribed to by the vast majority of mental specialists, although a respectable

minority of psychoanalysts and others might disagree; and the present reviewer has no intention of taking issue with it here. But the test of Dr. Seliger's book is not the approval or disapproval of a reviewer; it is the reception accorded by the pathological drinker and his friends, for the book is intended as therapy. The pathological drinker will react violently to the dictum, "You must never drink again." It may inspire him to renewed, defiant imbibing; it may simply anger him; but it is almost certain that, at the least, it will destroy his sympathy for the book and his receptivity toward the other truths conveyed therein. Any psychiatrist who has had much to do with the treatment of alcoholics can predict a variety of other possible reactions.

It is not the intent here to imply that the author should either suppress or distort scientific fact, or even that he should obscure the issue by deliberate underemphasis on his own generally accepted point of view. But it is this reader's feeling that the "never drink again" precept could be presented to better purpose and greater effect if it were simply noted that abstinence is considered necessary by most therapists and if this were coupled with the advice to "talk about this yourself with some good psychiatrist." Persuading a drinker never to drink again is a delicate and difficult job for the most skilled psychotherapist; it is no project to be accomplished by an 80-page book for laymen, no matter how scientifically grounded or how simply and soundly presented. "One of the main purposes of this book," writes Dr. Seliger, "is to encourage the abnormal drinker to obtain expert aid before it is too late." It is a good instrument for the purpose. The contention here is simply that it would be a vastly better one for a somewhat different handling of the "you must never drink again" dictum.

Ourselves Unborn. An Embryologist's Essay on Man. By GEORGE W. CORNER, M. D. xiv and 188 pages, with bibliography and index. VIII plates and 18 "text figures" (sketches and diagrams). Cloth. Yale University Press. New Haven. 1944. Price \$3.00.

"Ourselves Unborn" represents, says the author, "the substance of the Terry Lectures given at Yale University in March, 1944." The foundation established by the late Dwight Harrington Terry provided among other things for lectures on science, literature, sociology, history and ethics, to the end of assimilating and interpreting human knowledge and building scientific and philosophical truth "into the structure of a broadened and purified religion;" and the founder further widened his purpose by stipulating only that the lecturers must be well-qualified and must possess "loyalty to the truth, lead where it will, and devotion to human welfare." Under still broader interpretation of this already broad charter, the foun-

dation has sponsored and published a number of extraordinarily distinguished contributions to literature, science and philosophy, among them William Brown's "Science and Personality," John Dewey's "A Common Faith," Arthur H. Compton's "The Freedom of Man," Carl Jung's "Psychology and Religion," Henry E. Sigerist's "Medicine and Human Welfare," and Jacques Maritain's "Education at the Crossroads." Dr. Corner's book is both a fine contribution to the foundation's achievements and a worthy member of this already distinguished scientific and philosophical company.

"Ourselves Unborn" is tolerant, humorous, authoritative and exceedingly well written, for Dr. Corner, who is director of the department of embryology at Carnegie Institution and professor of embryology at the Johns Hopkins Medical School, is not only an authority and teacher in the fields of embryology and anatomy, but happens to be an unusually accomplished craftsman of language as well. The professional reader will find in this book notes on many recent discoveries and conclusions based on the latest research. The plates and diagrams are excellent and are well chosen to highlight the text from the days of de Graaf to those of some very recent work. Of considerable interest to the scientist, is emphasis on the point of view which stresses differences between human and other mammalian embryonic development, rather than the similarities which have led many a student to believe that human and fish embryos could not be distinguished in their early stages and that the human embryo actually had functional gill slits. It is also of considerable interest to note that Dr. Corner postulates the occurrence of "accidents" during growth to explain certain congenital malformations, anomalies and abnormalities of development which he does not regard as hereditary or as brought about by unusual intrauterine environment; he cites Mongolism as a condition which "cannot at present be classified in any other way." The author's conclusions, both from embryology and related sciences, as to man's place among the other mammals in nature are closely reasoned and worth study.

The medical practitioner will find "Ourselves Unborn" a thoroughly scientific series of essays which are light enough in tone to find a place on the library shelves which he reserves for recreational reading. The general reader with an intelligent interest in science will find this book both informative and fascinating. It does not call for a scientific education; but it does presuppose such general knowledge of chromosomes, genes and Mendelian laws as one would obtain from a university or even secondary school course in biology—although an elementary textbook used as a glossary might make a workable substitute for such a background. The volume should be a welcome gift for almost any student of biology, nursing or medicine.

Foster Home Care for Mental Patients. By HESTER B. CRUTCHER. 199 pages. Cloth. The Commonwealth Fund. New York. 1944. Price \$2.00.

Out of the wealth of her experience in the broad field of psychiatric social work, Hester Crutcher gives us this book of timely interest. It is essentially practical in its treatment, deals with such practical matters as cost of administration. As a result of her experience in New York State in the support of patients in foster homes in urban as well as in rural communities, she concludes that it is practical to obtain satisfactory boarding home care for less than \$7 a week and notes that this is less than the cost of caring for patients in the State hospitals. This figure does not include medical attention in case of illness, but it does include transportation, and it is to be presumed that a patient who falls ill will be returned to the hospital for care.

Miss Crutcher goes into considerable detail in describing the plan established in the foster home, the difficulties met with and how they are overcome. Since some of the patients referred to have been living in foster homes for more than eight years, it seems evident that the plan of care may be regarded as successful. It appears that the plan, while found suitable for mentally deranged patients, finds its best service in the cases of inmates of the schools for feeble-minded. One can see how the latter would be more adaptable, more easily controlled and submissive to rules established for the house. It is also to be remarked how successful a tactful and well-trained social worker can be in the handling of difficult personalities that are encountered in State institutions.

An appendix treats of the results of family care programs in other states of the Union, in a number of which it has been tried.

Miss Crutcher's book will be found of interest and value to institutions thinking of establishing this form of care; and those engaged in the project will avoid many pitfalls if they familiarize themselves with what Miss Crutcher has to say on the various aspects of the subject.

NEWS AND COMMENT

NATIONAL COMMITTEE BACKS NEUROPSYCHIATRIC ACT

The proposed national neuropsychiatric act, introduced by Representative Priest of Tennessee and now before Congress, is being advocated strongly by the National Committee for Mental Hygiene as a means to provide the psychiatric out-patient facilities which will be greatly needed by former servicemen and others in the years following the war. Besides clinic establishment, staff training and encouragement of research, the bill proposes to set up a National Neuropsychiatric Institute in the United States Public Health Service.

DR. HENRY I. KLOPP, ALLENTOWN SUPERINTENDENT FOR 30 YEARS, DIES IN PHILADELPHIA

Dr. Henry I. Klopp, superintendent of Allentown State Hospital in Pennsylvania for 30 years before his retirement in 1942, died in Philadelphia on March 7, 1945, at the age of 75. Dr. Klopp was the first superintendent the Allentown institution ever had, going there in 1912 from the Westboro (Massachusetts) State Hospital, where he had been a staff member since 1895. At Allentown, he gained a national reputation as a progressive psychiatrist and able administrator. Dr. Klopp had a wide personal acquaintance in professional circles and was regarded by his colleagues in the American Psychiatric Association as one of their best-loved members.

Born in 1870, Henry I. Klopp received his medical degree from Hahnemann Medical College and Hospital in 1894. He began specializing in psychiatry the following year when he joined the Westboro hospital staff. He is survived by a daughter in Newton, Mass., and a sister in Sheridan, Penn.

LASKER AWARD NOMINATIONS NOW BEING RECEIVED

Nominations for the annual \$1,000 award of the Mary and Albert Lasker Foundation for outstanding service in the cause of mental hygiene are being received by the National Committee for Mental Hygiene. Names and supporting data will be judged by an anonymous jury; and this year's award, to be announced in November, will be made for a contribution in the psychiatric rehabilitation field. Colonel William C. Menninger, M. C., received last year's award, the first one given.

EDITOR OF THE JOURNAL OF PSYCHIATRY IS DEAD IN AUSTRALIA

Wentworth, a well-known psychiatrist and a dangerous foe of Adolf Hitler, Schuster, and other physicians and writers who were considered dangerous to the interests of the international psychoanalytic publishing houses in Vienna and who edited Freud's *Collected Works*, died in Melbourne, Australia, early in December at the age of 57. He, who was living in England, had finished two books in German on psychoanalysis and his translation of Jung's *Collected Works*. He was formerly editor of "Things." Dr. Schuster, known in England, became a refugee from Austria after the Anschluss, went to Shanghai, where he edited a Chinese daily newspaper, and was eventually expelled to Hong Kong, Manila, and Australia after the outbreak of war with Japan. In Australia he was making his living by operating a repair shop in a Melbourne factory.

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PSYCHOANALYTIC MEDICINE GROUP ORGANIZES IN ALBANY

The Organizing Committee of the Association in Albany of a new medical group, the Albany Society for the Advancement of Psychoanalytic Medicine, with Dr. Robert R. Hasselbacher as president and Dr. Alex. G. Wynn, psychiatrist and psychoanalyst, as secretary. Deputy Commissioner Norman J. T. Bigelow, M.D., of the Department of Mental Hygiene is a member of the society's executive committee. Specialties represented in the membership, which is open to physicians within 50 miles of Albany, ranged from general surgery and military medicine and surgery to pediatrics and cancer research. Honorary members include Drs. F. Linders Duharr, Edwin G. Zborik and A. A. Brill of New York City. The society's main folder outlining its formation and purposes suggests that constituent societies of the American Association for Research on Problems in Psychoanalytic Medicine may someday be formed and that if that day arrives the Albany group will be the first to apply for membership.

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DR. SIGMUND KURUMBOLZ, PSYCHIATRIST, DIES IN CALIFORNIA

Sigmund Kurumbolz, M.D., professor of neurology and chairman of the department of neurology at the Chicago Medical School, died on January 22, 1935, in Chicago at the age of 73. He had formerly been on the faculty of Northwestern University Medical School for some 20 years. Born in Poland, he was a graduate of the University of Lódz in 1909. In 1912 he was in Poland, he was a graduate of the University of Lódz in 1909. In 1912 he was in Poland, he was a graduate of the University of Lódz in 1909. Dr. Kurumbolz practiced psychiatry as well as neurology; he was known as the author of numerous scientific articles in his lifetime specialty.

DR. LEWIS SUCCEEDS DR. JELLIFFE AS EDITOR OF TWO PUBLICATIONS

Nolan D. C. Lewis, M. D., director of the New York State Psychiatric Institute and Hospital and professor of neurology and psychiatry at Columbia University, has become managing editor of "The Journal of Nervous and Mental Disease" and of "The Psychosomatic Review," succeeding Smith Ely Jelliffe, M. D., managing editor of the former publication for 42 years and founder, in 1913, with William A. White, M. D., of the latter quarterly, of which he had been managing editor ever since. Dr. Jelliffe's retirement was effective on January 1, 1945, and the February issue of "The Journal of Nervous and Mental Disease" included a one-page farewell message from him to his associates, subscribers and advertisers. Dr. Lewis' name appeared as managing editor for the first time in the March issue. Arthur N. Flox, M. D., associated for some time with Dr. Jelliffe in the editing of the two journals, is still associate managing editor. Besides his teaching, research and administrative work, Dr. Lewis has had long and close acquaintance with scientific writing and editing. Among his works are two volumes on *Sanatoria puerorum*, numerous short articles, and the current edition of the book, "Outlines for Psychiatric Examinations," published by The State Hospitals Press at Utica in 1943.

DR. STEVENS HEADS WASHINGTON MENTAL HYGIENE WORK

George C. Stevens, M. D., in charge for the last six years of Indiana's mental hygiene program as director of the division of medical care of that state's Department of Public Welfare, has moved to the State of Washington to take charge of a similar program there. The Washington program is already under way, with particular attention being paid to the psychiatric needs of returning servicemen; and further expansion is planned.

COMMISSIONER WILLIAM J. ELLIS IS DEAD IN NEW JERSEY

William J. Ellis, Ph.D., commissioner of the state Department of Institutions and Agencies in New Jersey for the last 19 years, died in his home on the Trenton State Hospital grounds on March 31, 1945, at the age of 52. A teacher, psychologist and sociologist, Dr. Ellis was nationally known in the fields of mental hygiene and institutional care. In the latter, he became widely known for administrative and organizing ability; the New Jersey institutions were expanded from about 12,000 to 70,000 residents during his tenure of office as commissioner.

EDITOR OF FREUD'S WRITINGS IS DEAD IN AUSTRALIA

Word was received here late in January that Dr. Adolf J. Storfer, author, physician and editor who was formerly managing editor of the international psychoanalytic publishing house in Vienna and who edited Freud's "Collected Writings," died in Melbourne, Australia, early in December at the age of 57. His own writings had included two books in German on psychoanalysis and its relation to language. He was formerly editor of "Imago." Dr. Storfer, born in Hungary, became a refugee from Austria after the *Anschluss*, went to Shanghai where he edited an anti-Nazi newspaper, and was evacuated eventually to Hong Kong, Manila and Australia after the outbreak of war with Japan. In Australia, he was making his living by operating a turret lathe in a Melbourne factory.

PSYCHOSOMATIC MEDICINE GROUP ORGANIZES IN ALBANY

THE QUARTERLY takes note of the formation in Albany of a new medical group, the Albany Society for the Advancement of Psychosomatic Medicine, with Dr. Robert R. Faust, teacher of medicine in the Albany Medical School and general practitioner, as president, and Dr. Alva Gwin, psychiatrist and psychoanalyst, as secretary. Deputy Commissioner Newton J. T. Bigelow, M. D., of the Department of Mental Hygiene, is a member of the society's executive committee. Specialties represented in the membership, which is open to physicians within 75 miles of Albany, range from general surgery and military medicine and surgery to pediatrics and cancer research. Honorary members include Drs. Flanders Dunbar, Edwin G. Zabriskie and A. A. Brill of New York City. The society's small folder outlining its formation and purposes suggests that constituent societies of the American Association for Research on Problems in Psychosomatic Medicine may some day be formed and that if that day arrives the Albany group will be the first to apply for membership.

DR. SIGMUND KRUMHOLZ IS DEAD IN CHICAGO AT 73

Sigmund Krumholz, M. D., professor of neurology and chairman of the department of neurology at the Chicago Medical School, died on January 26, 1945, in Chicago at the age of 73. He had formerly been on the faculty of Northwestern University Medical School for some 20 years. Born in Poland, he was a graduate of Bellevue Hospital Medical College in 1899. Dr. Krumholz practised psychiatry as well as neurology; he was known as the author of numerous scientific articles in the latter specialty.

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DR. HUMPHREYS BECOMES MICHIGAN MENTAL HYGIENE DIRECTOR

An appointment in another state of unusual interest to New York civil State hospital staff members is the naming of Dr. Edward J. Humphreys, assistant superintendent of the State Home and Training School at Coldwater, Mich., to succeed Dr. Frank F. Tallman as director of the Michigan Department of Mental Hygiene. Dr. Humphreys went to Michigan from the New York State hospital system, where he had served, among other positions, on the staff of the Psychiatric Institute and had been for about 10 years before going to Michigan director of research at Letchworth Village. He is editor of "The American Journal of Mental Deficiency," a position he also held at Letchworth Village and at Coldwater. Dr. Tallman, whom he succeeds in Michigan and who has become director of mental hygiene in the Department of Health in Ohio, is also a New York State-trained psychiatrist. He was director of clinical psychiatry at Rockland State Hospital before going to Michigan.

